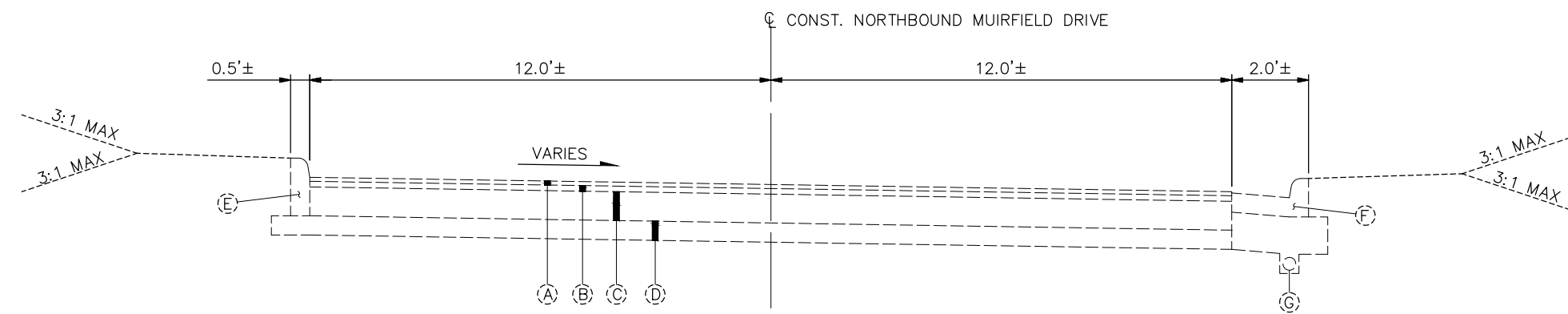
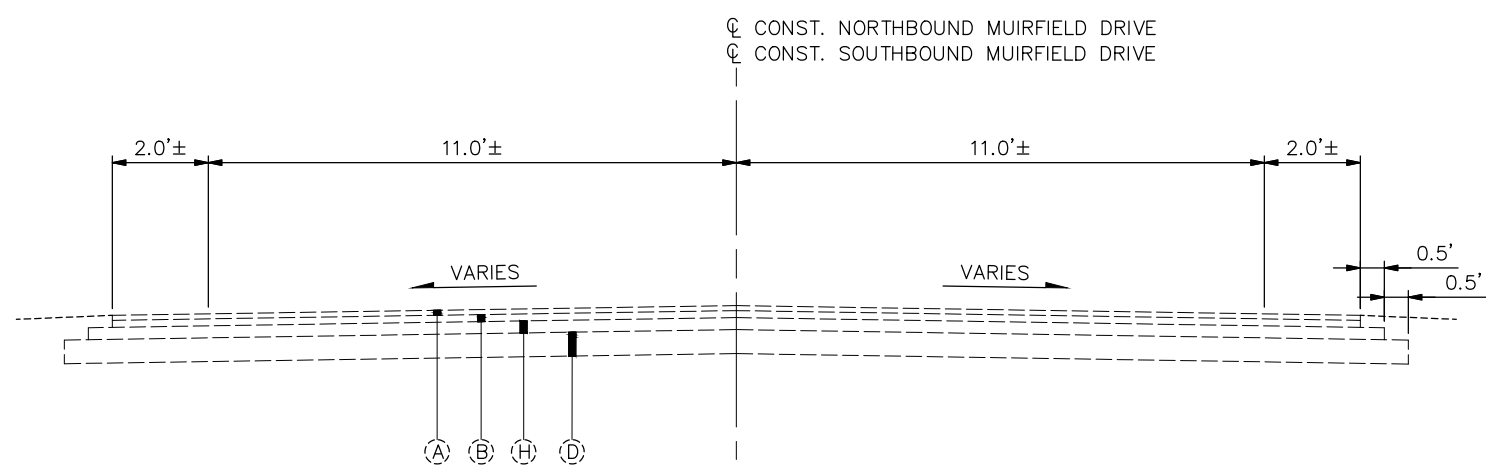


EXISTING MUIRFIELD DR. SB TYPICAL SECTION
STA. 12+76.47 TO STA. 13+10.47



EXISTING MUIRFIELD DR. NB TYPICAL SECTION
STA. 52+95.00 TO STA. 53+19.23

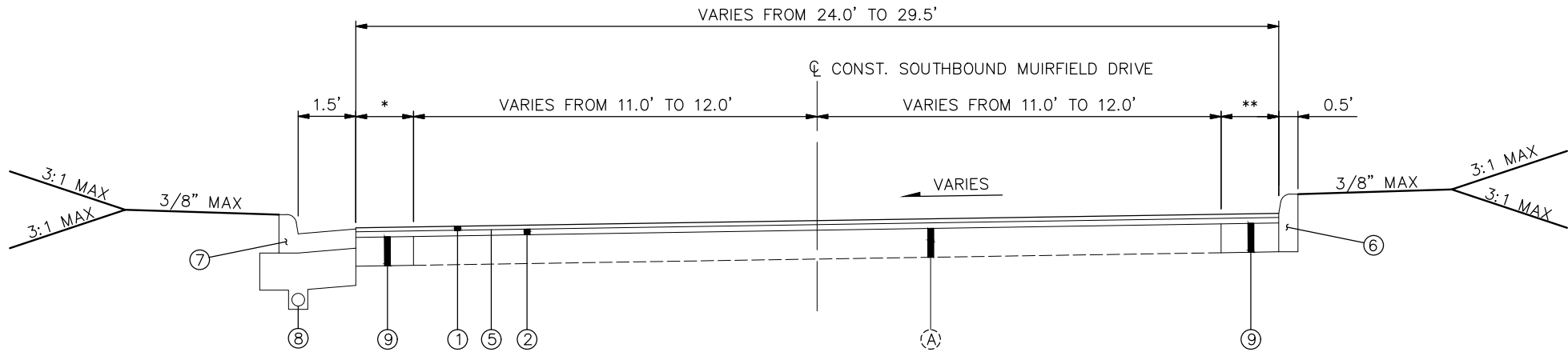


EXISTING MUIRFIELD DR. NB AND SB TYPICAL SECTION
NB STA. 54+47.80 TO STA. 54+74.20
SB STA. 14+39.04 TO STA. 14+60.00

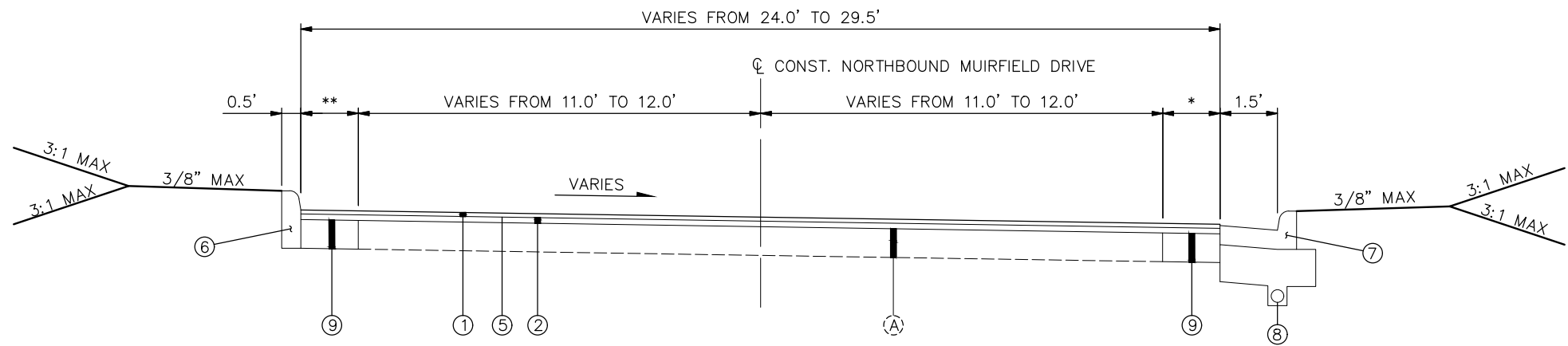
LEGEND

- (A) 1¼"± ASPHALT CONCRETE SURFACE COURSE
- (B) 1¾"± ASPHALT CONCRETE SURFACE COURSE
- (C) 9"± BITUMINOUS AGGREGATE BASE COURSE
- (D) 6"± AGGREGATE BASE
- (E) CURB
- (F) COMBINATION CURB AND GUTTER
- (G) 4" PIPE UNDERDRAIN
- (H) 3"± BITUMINOUS AGGREGATE BASE COURSE

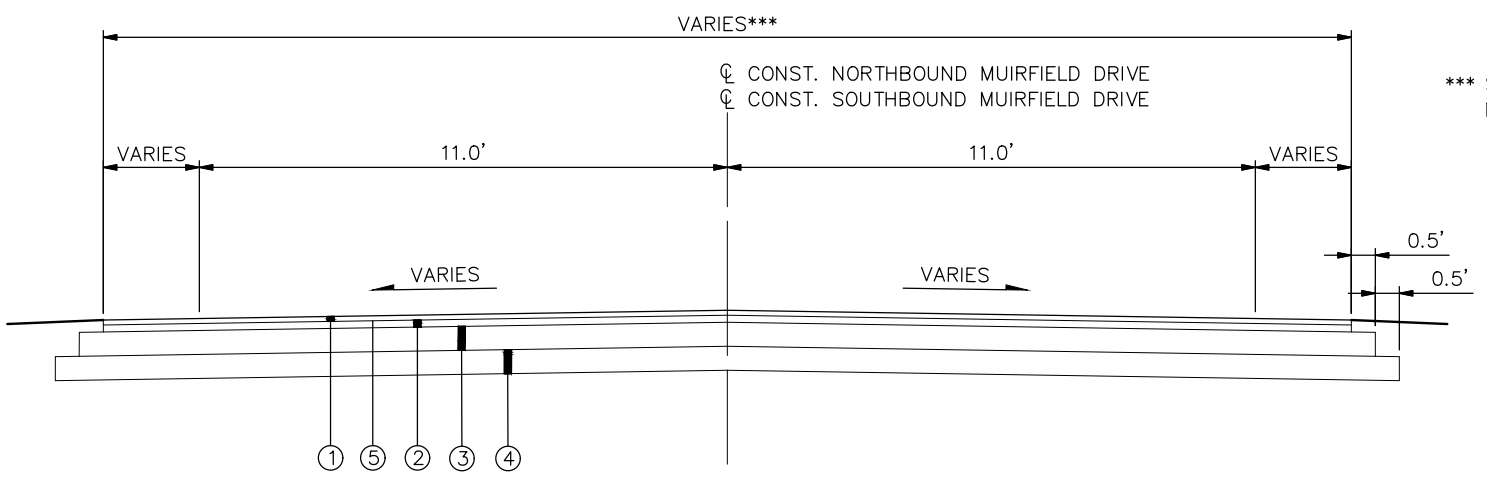
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PROPOSED MUIRFIELD DR. SB TYPICAL SECTION
STA. 12+76.47 TO STA. 13+10.47



PROPOSED MUIRFIELD DR. NB TYPICAL SECTION
STA. 52+95.00 TO STA. 53+19.23



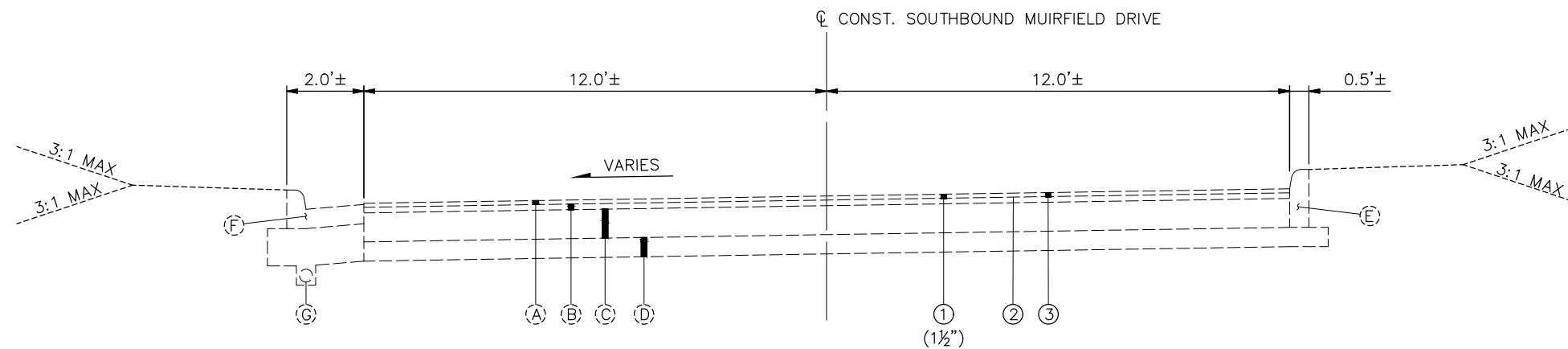
PROPOSED MUIRFIELD DR. NB AND SB TYPICAL SECTION
SB STA. 14+39.04 TO STA. 14+60.00
NB STA. 54+47.80 TO STA. 54+74.20

* VARIES 1.0' TO 2.0'
** VARIES 1.0' TO 3.5'
*** SB 32.0' TO 25.5'
NB 32.0' TO 27.5'

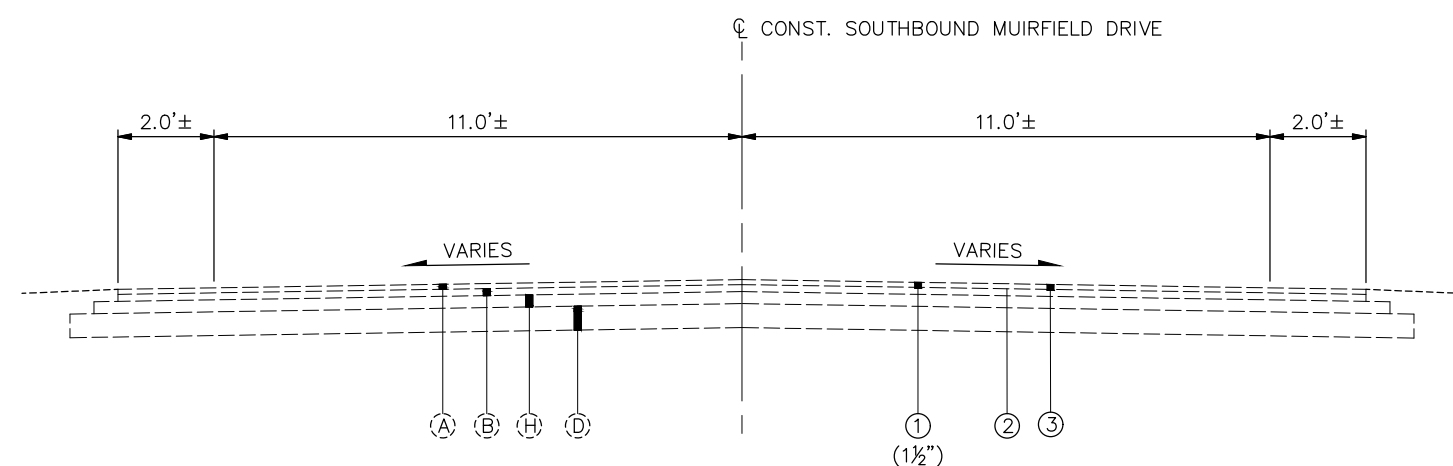
LEGEND

- ① ITEM 441 - 1 1/4" SURFACE COURSE, TYPE 1, (448) PG64-22, MT (UNLESS NOTED OTHERWISE)
- ② ITEM 441 - 1 3/4" INTERMEDIATE COURSE, TYPE 2, (448), PG64-22, MT
- ③ ITEM 301 - 6" ASPHALT CONCRETE BASE, PG64-22
- ④ ITEM 304 - 6" AGGREGATE BASE
- ⑤ ITEM 407 - NTSS-1HM TRACKLESS TACK COAT FOR INTERMEDIATE COURSE (0.055 GAL/SY)
- ⑥ ITEM 609 - CURB, TYPE 6
- ⑦ ITEM 609 - COMBINATION CURB AND GUTTER, TYPE STANDARD
- ⑧ ITEM 605 - 4" PIPE UNDERDRAINS (INCLUDING #57 AGGREGATE BASE)
- ⑨ ITEM 499 - 9" COC 6 CONCRETE
- Ⓐ 9" EXISTING ASPHALT CONCRETE BASE

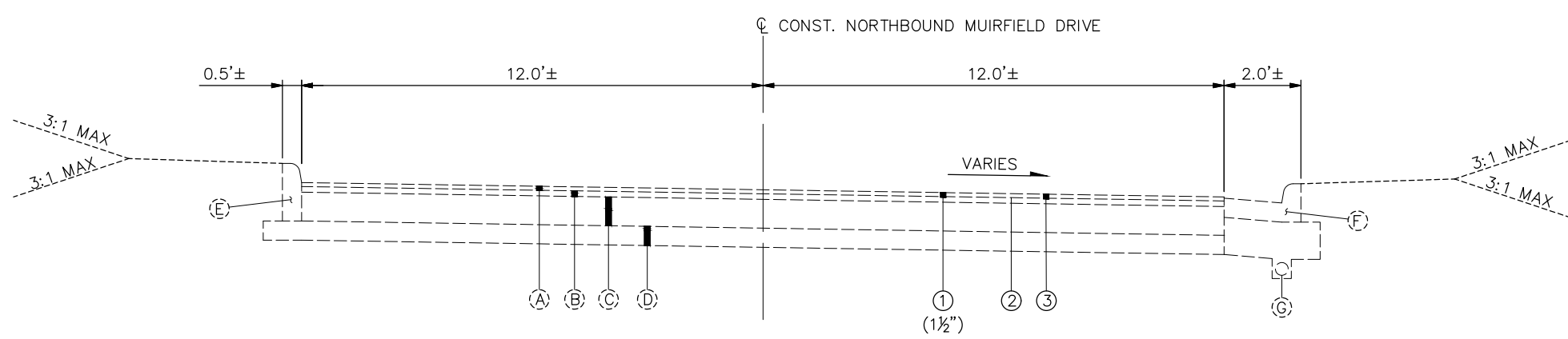
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EXISTING MUIRFIELD DR. SB TYPICAL SECTION - RESURFACING
STA. 10+45.94 TO STA. 13+10.47



EXISTING MUIRFIELD DR. SB TYPICAL SECTION - RESURFACING
SB STA. 14+39.04 TO STA. 15+00.00



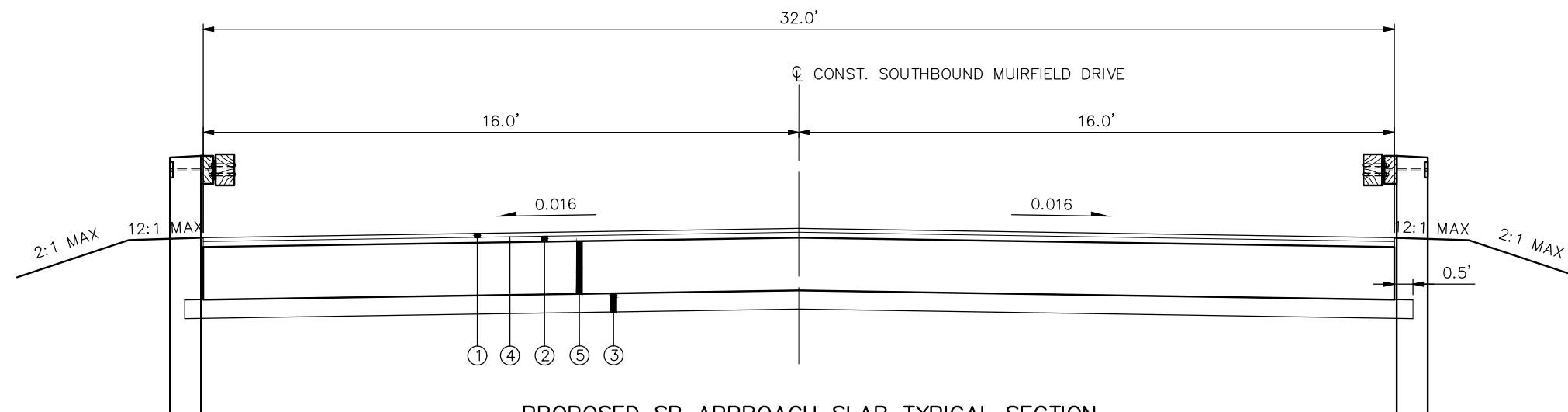
EXISTING MUIRFIELD DR. NB TYPICAL SECTION - RESURFACING
STA. 50+39.11 TO STA. 53+19.23

LEGEND

- ① ITEM 441 - 1½" SURFACE COURSE, TYPE 1, (448), PG64-22, MT
- ② ITEM 407 - NTSS-1HM TRACKLESS TACK COAT FOR INTERMEDIATE COURSE (0.055 GAL/SY)
- ③ ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE, 1½"
- (A) 1¼"± ASPHALT CONCRETE SURFACE COURSE
- (B) 1¾"± ASPHALT CONCRETE SURFACE COURSE
- (C) 9"± BITUMINOUS AGGREGATE BASE COURSE
- (D) 6"± AGGREGATE BASE
- (E) CURB
- (F) COMBINATION CURB AND GUTTER
- (G) 4"± PIPE UNDERDRAIN
- (H) 3"± BITUMINOUS AGGREGATE BASE COURSE

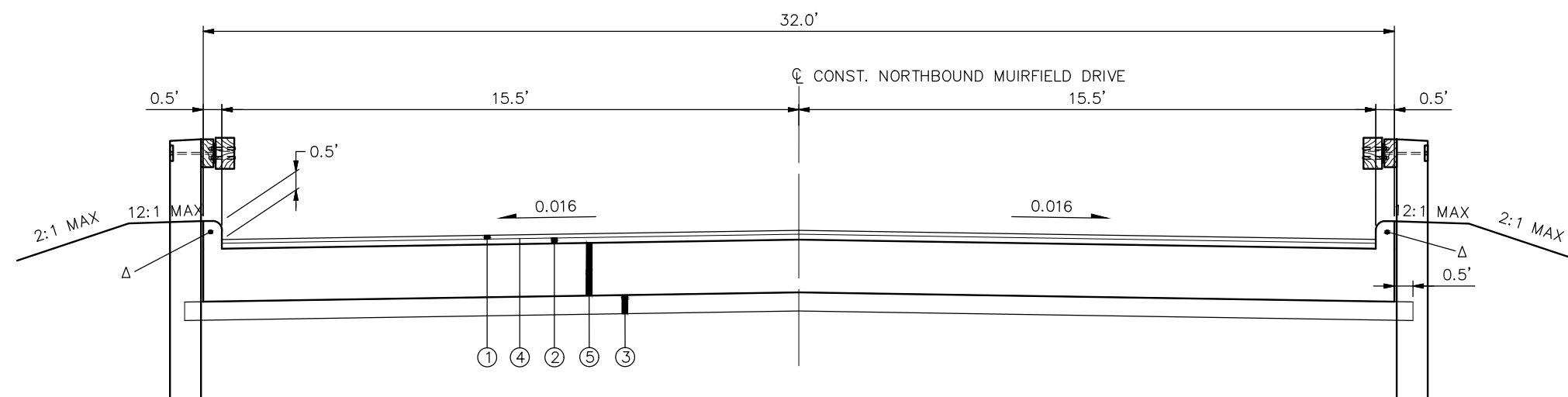
EXISTING TYPICAL SECTION

MUIRFIELD DRIVE



PROPOSED SB APPROACH SLAB TYPICAL SECTION

REAR APPROACH SLAB STA. 13+10.47 TO STA. 13+40.47
FORWARD APPROACH SLAB STA. 14+09.04 TO STA. 14+39.04



PROPOSED NB APPROACH SLAB TYPICAL SECTION*

REAR APPROACH SLAB STA. 53+19.23 TO STA. 53+49.23
FORWARD APPROACH SLAB STA. 54+17.80 TO STA. 54+47.80

*ONLY CURB ON REAR ABUTMENT APPROACH SLAB

Δ - 10' CURB TRANSITION FROM 6" TO 0"
LEFT CURB TRANSITION FROM STA. 53+19.23 TO STA. 53+29.50
RIGHT CURB TRANSITION FROM STA. 53+19.23 TO STA. 53+28.96

LEGEND

- ① ITEM 441 - 1 1/4" SURFACE COURSE, TYPE 1, (448) PG64-22, MT (UNLESS NOTED OTHERWISE)
- ② ITEM 441 - 1 3/4" INTERMEDIATE COURSE, TYPE 2, (448), PG64-22, MT
- ③ ITEM 304 - 6" AGGREGATE BASE
- ④ ITEM 407 - NTSS-1HM TRACKLESS TACK COAT FOR INTERMEDIATE COURSE (0.055 GAL/SY)
- ⑤ ITEM 526 - REINFORCED CONCRETE APPROACH SLABS WITH QC/QA (T=17"), AS PER PLAN

GENERAL

THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS (C.O.C. CMS), 2018 EDITION, AND ANY SUPPLEMENTS THERETO, ALONG WITH CITY OF DUBLIN GENERAL CONDITIONS, DIVISION 100 SHALL GOVERN ALL CONSTRUCTION ITEMS UNLESS OTHERWISE NOTED. ITEM NUMBERS LISTED REFER TO C.O.C. CMS ITEM NUMBERS UNLESS OTHERWISE NOTED.

THE CONTRACTOR INTENDING TO SUBMIT A BID FOR THIS PROJECT SHALL BE PREQUALIFIED WITH THE OHIO DEPARTMENT OF TRANSPORTATION IN ACCORDANCE WITH SECTION 102 OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND CHAPTER 5525 OF THE OHIO REVISED CODE CONCERNING CONSTRUCTION CONTRACTS.

ALL ITEMS OF WORK CALLED FOR ON THE PLANS FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED SHALL BE PERFORMED BY THE CONTRACTOR WITH THE COST TO BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS RELATED ITEMS.

THE CITY ENGINEER IS NOT RESPONSIBLE FOR MEANS, METHODS, PROCEDURES, TECHNIQUES, OR SEQUENCES OF CONSTRUCTION THAT ARE NOT SPECIFIED HEREIN. THE CITY ENGINEER IS NOT RESPONSIBLE FOR SAFETY ON THE WORK SITE, OR FOR FAILURE BY THE CONTRACTOR TO PERFORM WORK ACCORDING TO THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL NOTIFY THE CITY OF DUBLIN DIVISION OF ENGINEERING AT LEAST 3 WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION.

THE CITY IS RESPONSIBLE FOR OBTAINING AND PROVIDING TO THE CONTRACTOR ALL NECESSARY PERMITS. THE CONTRACTOR IS NOT AUTHORIZED TO PLACE ANY FILL OR WORK WITHIN ANY WATERWAY BELOW THE ORDINARY HIGH WATER MARK DURING CONSTRUCTION UNTIL THE WATER WAY PERMIT IS OBTAINED.

ANY MODIFICATION TO THE WORK SHOWN ON DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE CITY ENGINEER, CITY OF DUBLIN.

FOLLOWING COMPLETION OF CONSTRUCTION, A PROOF SURVEY SHALL BE PROVIDED BY THE CONTRACTOR TO THE DIVISION OF ENGINEERING THAT DOCUMENTS "AS-BUILT" ELEVATIONS, DIMENSIONS, SLOPES AND ALIGNMENTS OF ALL PUBLIC UTILITIES (TWIN-STRUCTURES, ADJACENT PEDESTRIAN BRIDGES, STORM, WATER) COMPLETED AS PART OF THIS PROJECT. THE PROOF SURVEY SHALL BE PREPARED, SIGNED, AND SUBMITTED BY AN OHIO PROFESSIONAL ENGINEER/SURVEYOR. THE CONTRACTOR SHALL REVISE THE ORIGINAL PDF IN RED INK, TO THE SATISFACTION OF THE CITY, SHOWING ALL CHANGES IN THE WORK. THE COST OF THE PROOF SURVEY, INCLUDING PDF REVISIONS, WILL BE PAID AT THE LUMP SUM PRICE BID FOR ITEM SPECIAL – PROOF SURVEY.

THE CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITY TO PUBLIC RIGHT-OF-WAY, AREAS DEFINED AS PERMANENT AND/OR TEMPORARY CONSTRUCTION EASEMENTS, UNLESS OTHERWISE AUTHORIZED BY THE CITY ENGINEER.

THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCH MARKS, PROPERTY CORNERS, REFERENCE POINTS, STAKES, AND OTHER SURVEY REFERENCE MONUMENTS OR MARKERS. IN CASES OF WILLFUL OR CARELESS DESTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATIONS. RESETTLEMENT OF MARKERS SHALL BE PERFORMED BY AN OHIO PROFESSIONAL SURVEYOR AS APPROVED BY THE CITY ENGINEER AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINISHED WORK CONFORMING TO THE LINES, GRADES, ELEVATIONS, AND DIMENSIONS CALLED FOR ON THE DRAWINGS AND TYPICAL SECTIONS. PAYMENT FOR CONSTRUCTION LAYOUT SHALL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM 623 – CONSTRUCTION LAYOUT STAKES.

SUBSURFACE INVESTIGATIONS WERE PERFORMED FOR DESIGN AND ESTIMATING PURPOSES AND ARE PROVIDED IN THE BIDDING DOCUMENTS. LOG AND TESTS ARE NOT WARRANTED TO SHOW ACTUAL SUBSURFACE CONDITIONS. THE CONTRACTOR SHALL EXAMINE THIS INFORMATION AND OBTAIN ADDITIONAL INFORMATION AT HIS OWN EXPENSE, IF NECESSARY, IN HIS JUDGEMENT.

NON-RUBBER TIERED VEHICLES SHALL NOT BE MOVED ON OR ACROSS PUBLIC STREETS OR HIGHWAYS WITHOUT WRITTEN PERMISSION FROM THE CITY ENGINEER.

THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EQUAL OR BETTER CONDITION THAN EXISTED BEFORE CONSTRUCTION. DRAINAGE DITCHES OR WATER COURSES THAT ARE DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO THE GRADES AND CROSS-SECTIONS THAT EXISTED BEFORE CONSTRUCTION.

TRACKING OR SPILLING MUD, DIRT, OR DEBRIS UPON STREETS, RESIDENTIAL OR COMMERCIAL DRIVES, SIDEWALKS, OR BIKE PATHS IS PROHIBITED ACCORDING TO SECTION 97.38 OF THE DUBLIN CODE OF ORDINANCES. ANY SUCH OCCURRENCE SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR AT NO COST TO THE CITY. IF THE CONTRACTOR FAILS TO REMOVE SAID MUD, DIRT, DEBRIS, OR SPILLAGE, THE CITY RESERVES THE RIGHT TO REMOVE THESE MATERIALS AND CLEAN AFFECTED AREAS, THE COST OF WHICH SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR CONTRACTOR.

ALL SIGNS, LANDSCAPING, STRUCTURES, OR OTHER APPURTENANCES WITHIN RIGHT-OF-WAY DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE CITY ENGINEER. THE COST OF THIS WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

ALL FIELD TILE BROKEN OR ENCOUNTERED DURING EXCAVATION SHALL BE REPLACED OR REPAIRED AND CONNECTED TO THE PUBLIC STORM SEWER SYSTEM AS DIRECTED BY THE CITY ENGINEER. THE COST OF THIS WORK SHALL BE THE RESPONSIBILITY TO THE CONTRACTOR.

ALL INLETS, CATCH BASINS AND MANHOLES SHALL BE CHANNELIZED.

ALL TRENCHES WITHIN PUBLIC RIGHT-OF-WAY SHALL BE BACKFILLED ACCORDING TO THE APPROVED CONSTRUCTION DRAWINGS OR SECURELY PLATED DURING NONWORKING HOURS. TRENCHES OUTSIDE THESE AREAS SHALL BE BACKFILLED OR SHALL BE PROTECTED BY APPROVED TEMPORARY FENCING OR BARRICADES DURING NONWORKING HOURS. CLEAN UP SHALL FOLLOW CLOSELY BEHIND TRENCHING OPERATION.

UNLESS INDICATED OTHERWISE ON THE PLAN DETAILS, BACKFILL WITHIN A 1:1 INFLUENCE LINE OF EXISTING STRUCTURES (HOUSES, GARAGES, ETC.) OR OTHER PUBLIC INFRASTRUCTURE (PAVEMENT, CURBS, SIDEWALKS, SHARED USE PATHS, ETC.) SHALL BE COMPACTED GRANULAR BACKFILL ACCORDING TO ITEM 912 OF THE STANDARD SPECIFICATIONS OR FLOWABLE CDF, TYPE 2 ACCORDING TO ITEM 613. ITEM 911 OF STANDARD SPECIFICATIONS SHALL BE USED ELSEWHERE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONDITION OF TRENCHES WITHIN THE RIGHT-OF-WAY AND PUBLIC EASEMENTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE OF THE WORK, AND SHALL MAKE ANY NECESSARY REPAIRS AT NO COST TO THE CITY.

TREE TRIMMING WITHIN THE CONSTRUCTION ZONE IS TO BE COMPLETED BY A CERTIFIED ARBORIST. AT THE COMPLETION OF THE PROJECT, THE ARBORIST IS TO RETURN AND TRIM ANY BROKEN BRANCHES AS NEEDED.

ALL PRECAST CONCRETE PRODUCTS SHALL BE INSPECTED AT THE LOCATION OF MANUFACTURER. APPROVED PRECAST CONCRETE PRODUCTS WILL BE STAMPED OR HAVE SUCH IDENTIFICATION NOTING THAT INSPECTION HAS BEEN PERFORMED BY THE CITY OF DUBLIN. PRECAST CONCRETE PRODUCTS WITHOUT PROOF OF INSPECTION SHALL NOT BE APPROVED FOR INSTALLATION. THE COST OF INSPECTION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS RELATED ITEMS.

ALL NON-PAVEMENT AREAS DISTURBED WITHIN THE DESIGNATED EASEMENTS, RIGHTS-OF-WAY, AND LIMITS OF DISTURBANCE AS SHOWN, SHALL BE SEEDED AND STRAWED IN ACCORDANCE WITH ITEM 659 – SEEDING AND MULCHING, AS PER PLAN. ALL AREAS DISTURBED OUTSIDE THESE LIMITS SHALL BE SEEDED AND STRAWED AT THE CONTRACTOR'S EXPENSE.

UTILITIES

THE FOLLOWING UTILITIES ARE KNOWN TO BE LOCATED WITHIN THE LIMITS OF THIS PROJECT:

FOR WATER, SANITARY SEWER, STORM SEWER: CITY OF DUBLIN DIVISION OF ENGINEERING ATTN: KEN RICHARDSON, PE, PS 6555 SHIER RINGS ROAD DUBLIN, OH 43016 OFFICE: (614) 410-4631

AT&T ATTN: GARY VAN ALMSICK 111 N. 4TH STREET ROOM 802 COLUMBUS, OH 43215 PHONE: (614) 223-7276

TW TELECOM INC. ATTN: MARK BLACKBURN 250 WEST OLD WILSON BRIDGE RD. SUITE 130 WORTHINGTON, OH 43085 OFFICE: (614) 255-2148

CHARTER COMMUNICATION ATTN: SAM LUTZ 3760 INTERCHANGE ROAD COLUMBUS, OH 43204 OFFICE: (614) 481-5047

DUBLINK – TEAM FISHEL ATTN: MATT BLACKSTONE 1366 DUBLIN ROAD COLUMBUS, OH 43215 OFFICE: (614) 921-8634

COLUMBUS DIVISION OF SEWERAGE & DRAINAGE 1250 FAIRWOOD AVENUE COLUMBUS, OHIO 43206 (614) 645-7175

XO COMMUNICATIONS 10 WEST BROAD STREET COLUMBUS, OH 43215 OFFICE: (614) 416-1703 ATTN: BILL MARTIN

COLUMBIA GAS OF OHIO ATTN: KAITLIN KEENE ASSOCIATE FIELD ENGINEER 3550 JOHNNY APPLESEED CT COLUMBUS, OH 43231 CELL: (614) 652-5003 OFFICE: (614) 818-2126

AEP ATTN: PAUL PAXTON 700 MORRISON ROAD, 3rd FLOOR GAHANNA, OH 43230 PHONE: (614) 883-6831

WOW INTERNET CABLE AND PHONE 3675 CORPORATE DRIVE COLUMBUS, OH 43231 OFFICE: (614) 948-4636 ATTN: STEVE CALLAHAN

SPECTRUM 3760 INTERCHANGE ROAD COLUMBUS, OH 43204 (614) 481-5421 ATTN: MIKE OZIMOK

COLUMBUS DIVISION OF WATER 910 DUBLIN ROAD COLUMBUS, OH (614) 645-7677

THE CONTRACTOR SHALL GIVE NOTICE OF INTENT TO CONSTRUCT TO OHIO UTILITIES PROTECTION SERVICE (TELEPHONE NUMBER 811 OR 800-362-2764), PRODUCER'S UNDERGROUND PROTECTION SERVICE (TELEPHONE NUMBER 614-587-0486), AND TO OWNERS OF UNDERGROUND UTILITIES THAT ARE NOT MEMBERS OF A REGISTERED UNDERGROUND PROTECTION SERVICE. NOTICE SHALL BE GIVEN AT LEAST 2 WORKING DAYS BEFORE START OF CONSTRUCTION.

THE IDENTITY AND LOCATIONS OF EXISTING UNDERGROUND UTILITIES IN THE CONSTRUCTION AREA HAVE BEEN SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS AS ACCURATELY AS PROVIDED BY THE OWNER OF THE UNDERGROUND UTILITY, THE CITY OF DUBLIN, CITY ENGINEER, AND THE DESIGN PROFESSIONAL ASSUME NO RESPONSIBILITY FOR THE ACCURACY OR DEPTHS OF UNDERGROUND FACILITIES SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS. IF DAMAGE IS CAUSED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF THE SAME AND FOR ANY RESULTING CONTINGENT DAMAGE.

LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES, SHOWN OR NOT SHOWN ON THE APPROVED CONSTRUCTION DRAWINGS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

WHEN UNKNOWN OR INCORRECTLY LOCATED UNDERGROUND UTILITIES ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND THE CITY ENGINEER.

PUBLIC LIGHTING MAY BE IN THE VICINITY OF THIS PROJECT. CONTACT THE CITY OF DUBLIN, DIVISION OF ENGINEERING AT (614) 410-4637, TWO DAYS PRIOR TO BEGINNING WORK.

THE CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING IN THE PROXIMITY OF EXISTING AND/OR RELOCATED UTILITY FACILITIES. COSTS TO EXPOSE CONDUIT SHALL BE INCLUDED IN THE ITEMS OF WORK AFFECTED. THE CONTRACTOR IS REMINDED TO KEEP THEIR OUPS TICKET UPDATED ACCORDING TO INDUSTRY PRACTICES.

DRAINAGE

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO MAINTAIN AT ALL TIMES STORM SEWER, DRAIN, AND DITCH FLOWS THROUGH EXISTING FACILITIES TO REMAIN IN PLACE. THE FLOW OF ALL STORM SEWER, DRAINS, AND OTHER WATERCOURSES ENCOUNTERED AND DISTURBED OR DESTROYED DURING CONSTRUCTION SHALL BE RESTORED BY THE CONTRACTOR TO A CONDITION SATISFACTORY TO THE CITY ENGINEER. PAYMENT FOR THIS SHALL BE INCLUDED IN THE PRICES BID FOR THE VARIOUS ITEMS OF THE CONTRACT.

EXISTING STORM SEWER LOCATED WITHIN THE WORK LIMITS THAT IS TO REMAIN IN SERVICE HAS BEEN MARKED ON THE PLANS "TO REMAIN" OR "DO NOT DISTURB". THE CONTRACTOR SHALL PROTECT THESE SEWERS AND THEIR ASSOCIATED STRUCTURES FROM DAMAGE DURING CONSTRUCTION.

EROSION AND SEDIMENT CONTROL

A SEDIMENT AND EROSION CONTROL PLAN MUST BE SUBMITTED TO THE CITY ENGINEER FOR APPROVAL IF A SEDIMENT AND EROSION CONTROL PLAN HAS NOT ALREADY BEEN INCLUDED WITH THE APPROVED CONSTRUCTION DRAWINGS. THIS PLAN MUST BE MADE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE DESIGN OF THE EROSION CONTROL SYSTEMS SHALL FOLLOW THE REQUIREMENTS OF OHIO EPA, ITEM 207 OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND THE CITY ENGINEER.

USE OF FIRE HYDRANTS

THE CONTRACTOR SHALL MAKE PROPER ARRANGEMENTS WITH THE DUBLIN SERVICE DEPARTMENT AND THE COLUMBUS DIVISION OF WATER FOR THE USE OF FIRE HYDRANTS WHEN USED FOR WORK PERFORMED UNDER THIS CONTRACT AND PROVIDE THE CITY OF DUBLIN A COPY OF THE HYDRANT USAGE PERMIT OBTAINED FROM THE CITY OF COLUMBUS. THE CONTRACTOR SHALL ALSO SEND COPIES OF PERMITS OBTAINED FROM DUBLIN AND COLUMBUS TO THE WASHINGTON TWP FIRE DEPARTMENT. PERMITS SHALL BE KEPT AT THE CONSTRUCTION SITE AT ALL TIMES.

BEFORE THE FINAL ESTIMATE IS PAID, THE CONTRACTOR SHALL SUBMIT A LETTER FROM THE CITY OF COLUMBUS DIVISION OF WATER TO THE CITY ENGINEER STATING THAT THE CONTRACTOR HAS RETURNED THE SIAMESE VALVE TO THE CITY OF DUBLIN AND HAS PAID ALL COSTS ARISING FROM THE USE OF FIRE HYDRANTS.

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GENERAL NOTES

MUIRFIELD DRIVE

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AERIAL UTILITY COORDINATION

THE CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING NEAR THE EXISTING OVERHEAD UTILITY LINES. CONTRACTOR SHALL CONTACT AND COORDINATE DIRECTLY WITH THE UTILITY COMPANIES AS NEEDED DURING CONSTRUCTION AND SHALL MAINTAIN APPROPRIATE OSHA AND NESC CLEARANCES, INCLUDING ANY NECESSARY ENGINEERING CONTROLS.

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

CONSTRUCTION NOISE

THE CONTRACTOR'S CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED SO AS TO ELIMINATE ALL UNNECESSARY NOISE, DUST, AND ODORS. THE USE OF OIL OR OTHER MATERIALS FOR DUST CONTROL, WHICH MAY CAUSE TRACKING, IS PROHIBITED.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK SHOWN, LABELED, OR LISTED AS 'CONTINGENCY' OR REFERENCED BY PLAN NOTE TO BE USED 'AS DIRECTED BY THE ENGINEER,' UNLESS AUTHORIZED BY THE ENGINEER, OR A REPRESENTATIVE OF THE CITY OF DUBLIN.

PAVEMENT

PAVEMENTS SHALL BE CUT IN NEAT, STRAIGHT LINES TO THE FULL DEPTH OF PAVEMENT, OR AS REQUIRED BY THE CITY ENGINEER. PAVEMENT REPLACEMENT SHALL BE CONDUCTED ACCORDING TO CITY OF COLUMBUS STANDARD DRAWING 1441 DR. A AND APPLICABLE CITY OF DUBLIN STANDARD DRAWINGS.

BUTT JOINTS BETWEEN EXISTING AND NEW PAVEMENT SHALL BE MADE IN ACCORDANCE WITH ODOT STD. CONSTRUCTION DWG BP-3.1

THE CONTRACTOR SHALL NOT USE ANY RECLAIMED MATERIALS IN ITEM 304 - 6" AGGREGATE BASE.

TREE PRESERVATION AND SITE CLEARING

ALL TREES WITHIN THE CONSTRUCTION AREA NOT DESIGNATED FOR REMOVAL, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE PRESERVED WITHOUT DAMAGE. TREES TO BE PRESERVED SHALL BE PROTECTED WITH HIGH VISIBILITY TREE PROTECTION FENCING PRIOR TO CONSTRUCTION AS SHOWN ON SHEET 21/45. THE CITY RESERVES THE RIGHT TO DIRECT THE CONTRACTOR TO INSTALL ADDITIONAL FENCING IN AREAS WHERE TREES COULD BE DAMAGED DURING CONSTRUCTION. THE FOLLOWING QUANTITY SHALL BE PROVIDED TO PROTECT EXISTING TREES TO REMAIN:

ITEM SPECIAL - TREE PROTECTION FENCE 450 FT

WATERWAYS OF USA

CONTRACTOR SHALL NOT PLACE ANY FILL OR ACCESS WITH EQUIPMENT BELOW THE ORDINARY HIGH WATER ELEVATION.

SUBGRADE

THE CONTRACTOR SHALL DEFINE THE LIMITS OF ANY WEAK SOILS ENCOUNTERED BY PROOF ROLLING. WHERE SOFT SUBGRADE IS ENCOUNTERED IN CUT, DUE TO NO FAULT OF THE CONTRACTOR, AND SATISFACTORY COMPACTION CANNOT BE OBTAINED, THE UNSTABLE MATERIAL SHALL BE REMOVED AND REPLACED PER CMSC 204.04. THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED AS AN ALLOWANCE FOR BIDDING PURPOSED.

ITEM 204 - EXCAVATION OF SUBGRADE 7 CY

ITEM 204 - GRANULAR EMBANKMENT, NO. 2 STONE 7 CY

**ITEM 203 - EXCAVATION, AS PER PLAN
ITEM 203 - EMBANKMENT, AS PER PLAN**

THE EXCAVATION OF ASPHALT PAVEMENT, ASPHALT CURB, TOPSOIL OR UNSUITABLE MATERIALS NOT OTHERWISE ITEMIZED ON THIS PROJECT ARE INCLUDED WITHIN ITEM 203 - EXCAVATION, AS PER PLAN QUANTITIES FOR PAYMENT. ALL MATERIAL EXCAVATED FOR CONSTRUCTION INCLUDING TOPSOIL AND DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF UNLESS OTHERWISE APPROVED BY THE CITY.

ALL SOIL STOCKPILES INCLUDING TRENCH EXCAVATION STOCKPILES, SHALL BE PROTECTED FROM EROSION.

ALL MATERIAL TO BE DISPOSED OF OFF-SITE MUST BE DISPOSED OF IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. NO EXCESS MATERIALS ARE TO BE DISPOSED OF IN ANY WETLAND, FLOOD PLAIN, OR OTHER ENVIRONMENTALLY SENSITIVE AREAS.

THE FOLLOWING QUANTITIES ARE PROVIDED TO ADDRESS EARTHWORK.

ITEM 203 - EXCAVATION, AS PER PLAN 40 CY
ITEM 203 - EMBANKMENT, AS PER PLAN 14 CY

ITEM 204 - PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING.

ITEM 204 - PROOF ROLLING 2.0 HR

ITEM 604 - CURB AND GUTTER INLET WITH BIKE SAFE GRATE, AS PER PLAN

CATCH BASINS SHALL REFERENCE CURB AND GUTTER INLET COC STD. DWG AA-S125A WITH BICYCLE SAFE GRATE.

ITEM 608 DETECTABLE WARNING PANELS, AS PER PLAN

ALL DETECTABLE WARNINGS SHALL BE BY TUFTILE, A WET-SET CAST IRON (REPLACEABLE) TILE. BRICK RED COLOR SHALL BE USED, FED. #22144. THE COST OF THIS WORK WILL BE PAID AT THE UNIT PRICE BID PER SQUARE FOOT, AND SHALL BE IN ADDITION TO ANY OVERLAPPING PAYMENTS PER SQUARE FOOT FOR SIDEWALK OR PEDESTRIAN PATH.

ITEM 653 - TOPSOIL FURNISHED AND PLACED, AS PER PLAN

A MINIMUM OF 3 INCHES OF TOPSOIL SHALL BE PLACED IN ALL AREAS TO BE SEEDED. PRIOR TO PLACING TOPSOIL IN CUT AREAS, THE EARTH SHALL BE EXCAVATED TO A DEPTH SUFFICIENT TO PLACE 3 INCHES OF TOPSOIL. THE COST OF EXCAVATION AND DISPOSAL OF SURPLUS MATERIALS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE VARIOUS CONTRACT ITEMS.

TOPSOIL SHALL BE REMOVED AND WASTED OR UTILIZED IN NON-LOAD BEARING FILLS IN ACCORDANCE WITH THE SPECIFICATIONS. NO EXTRA COMPENSATION SHALL BE PAID FOR THE REMOVAL OF EXCESS TOPSOIL AS REQUIRED TO OBTAIN A SUITABLE SUBGRADE. PAYMENT FOR TOPSOIL REMOVAL IS INCLUDED IN ITEM 203 -EXCAVATION.

ITEM 659 - SEEDING AND MULCHING, AS PER PLAN

SEEDING AND MULCHING TO BE PER COLUMBUS C&MS ITEM 659, CLASS 1 EXCEPT FOR THE SEED SPECIFICATION AS FOLLOWS:

GRASS SEED MUST BE FRESH, CLEAN, DRY, NEW-CROP SEED COMPLYING WITH THE A.O.S.A. "JOURNAL OF SEED TECHNOLOGY"RULES FOR TESTING SEED FOR PURITY AND GERMINATION TOLERANCES.

SEED SPECIES SHALL BE AS FOLLOWS, WITH NOT LESS THAN 90 PERCENT GERMINATION, NOT LESS THAN 98 PERCENT PURE SEED, AND NOT MORE THAN 0.5 PERCENT WEED SEED.

SUN AND PARTIAL SHADE MIXTURE PROPORTIONED BY WEIGHT AS FOLLOWS:

1. 50 PERCENT KENTUCKY BLUEGRASS (POA PRATENSIS, MINIMUM OF TWO "IMPROVED" CULTIVARS.
2. 50 PERCENT PERENNIAL RYEGRASS (LOIUM PERENNE).

SEEDING:

SOW SEED AT A TOTAL RATE OF 7-9 LB. / 1000 SF. THOROUGHLY COVER WITH STRAW AND TACK TO PREVENT THE STRAW FROM BEING BLOWN OR WASHED AWAY IN AREAS THAT ARE NOT COVERED WITH EROSION CONTROL MATS.

PROTECT SEEDED AREAS WITH SLOPES EXCEEDING 3:1 WITH EROSION CONTROL BLANKETS AS DIRECTED BY THE ENGINEER. COST OF EROSION CONTROL BLANKETS, MATERIAL, AND LABOR SHALL BE PAID FOR BY THE CITY.

HYDRO-SEEDING IS PERMITTED. HYDRO-MULCHING IS NOT PERMITTED.

PROVIDE THE SAME MATERIALS AND INSTALLATION AS THOSE USED IN THE ORIGINAL INSTALLATION. WATER TURF WITH FINE SPRAY AT A MINIMUM RATE OF 1 INCH PER WEEK UNLESS RAINFALL PRECIPITATION IS ADEQUATE, FOR 5 CONSECUTIVE WEEKS.

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS

ITEM 653 - TOPSOIL FURNISHED AND PLACED (T=3") 133 CY
ITEM 659 - SEEDING AND MULCHING, AS PER PLAN 1600 SY
ITEM 659 - COMMERCIAL FERTILIZER 0.22 TON
ITEM 659 - WATER 5.0 MGAL

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL WITHIN THE CONSTRUCTION LIMITS. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS AND WERE DERIVED FROM CADD AREAS.

ITEM 670 - SLOPE EROSION PROTECTION MAT, AS PER PLAN

SLOPE EROSION PROTECTION SHALL BE APPLIED TO ALL PERMANENT SLOPES STEEPER THAN 3:1. MATTING SHALL BE ASPEN EXCELSIOR (GREEN), TYPE G PER 712.11.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH DUBLIN 107.12. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATION AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

THE FOLLOWING QUANTITY IS PROVIDED TO ADDRESS LOCATIONS REQUIRING THESE ITEMS;

ITEM 670 - SLOPE EROSION PROTECTION MAT, AS PER PLAN 45 SY

STORM SEWER

UNLESS OTHERWISE INDICATED, STORM SEWERS SHALL BE REINFORCED CONCRETE.

IF USED, REINFORCED CONCRETE PIPE SHALL CONFORM TO ASTM DESIGNATION C76, WALL B, CLASS IV FOR PIPE DIAMETERS 12 INCHES TO 15 INCHES AND CLASS III FOR 18 INCHES AND LARGER.

THE CONTRACTOR SHALL INCLUDE THE COST OF CONNECTION TO EXISTING STRUCTURES AND PIPES IN THE UNIT PRICE BID FOR THE VARIOUS 901 ITEMS. ALL MANHOLE CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH THE PROVISIONS OF ITEM 604.

TEMPORARY BULKHEADS SHALL BE BUILT IN ACCORDANCE WITH 901.13, AND BE INCLUDED WITH THE UNIT PRICE BID FOR THE VARIOUS 901 ITEMS.

ALL INLETS, CATCH BASINS, AND MANHOLES SHALL BE CHANNELIZED.

BICYCLE SAFE GRATES SHALL BE USED FOR ALL PROPOSED CURB AND GUTTER INLETS AND CATCH BASINS. ALL CATCH BASINS ARE TO BE EQUIPPED WITH EAST JORDAN #5110, TYPE M3 GRATES.

WHERE CONCRETE ENCASEMENT IS INDICATED ON THE PLANS, OR DIRECTED BY THE ENGINEER, THE WORK SHALL BE IN ACCORDANCE WITH CITY OF COLUMBUS STANDARD DRAWING AA-S151, TYPE 1 BEDDING FOR RIGID SEWER PIPE USING CLASS "C" CONCRETE. THE TOTAL LENGTH OF BACKFILL SHALL BE FOR ALL EXPOSED PORTIONS OF PIPE, OR AS DIRECTED BY THE ENGINEER. NO SEPARATE PAYMENT SHALL BE MADE.

PAYMENT FOR CONCRETE COLLARS, BULKHEADS, AND CRADLES SHALL BE INCLUDED IN THE UNIT BID PRICE FOR THE STORM SEWER PIPE.

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE CITY, REPRESENTATIVES OF THE CITY AND THE CONTRACTOR SHALL MAKE AN INSPECTION OF ALL EXISTING STORM SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE CITY.

ALL EXISTING STORM SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE CITY ENGINEER.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATERIAL AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE CITY.

PAYMENT FOR ALL INSPECTIONS, CLEANING, AND MAINTENANCE OF EXISTING AND NEW STORM SEWER DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT CONTRACT ITEMS.

ITEM SPECIAL - IRRIGATION PIPE

EXISTING IRRIGATION PIPE OUTSIDE OF SOUTHBOUND BRIDGE, REAR ABUTMENT, TO BE REMOVED AND REPLACED, IN KIND AND AT THE SAME LOCATION ADJACENT TO THE NEW REAR ABUTMENT. COST OF COORDINATING WITH THE MUIRFIELD ASSOCIATION, DISCONNECTING THE PIPE, REPLACING THE PIPE AND APPURTENANCES REMOVED BY PROJECT, RESTORING THE IRRIGATION PIPE TO ACTIVE OPERATION, AND OTHER VARIOUS RELATED ITEMS NECESSARY TO RESTORE EXISTING IRRIGATION SYSTEM TO LIKE OR BETTER CONDITION, SHALL BE PERFORMED BY THE CONTRACTOR WITH THE COST TO BE INCLUDED IN THE LUMP SUM BID FOR ITEM SPECIAL - IRRIGATION PIPE.

CALCULATED
CJK
CHECKED
SPK

GENERAL NOTES

MUIRFIELD DRIVE

ITEM 614 – MAINTAINING TRAFFIC, AS PER PLAN

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (CURRENT EDITION), COPIES OF WHICH ARE AVAILABLE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, OFFICE OF TRAFFIC ENGINEERING, 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223.

THE ROADWAY SHALL NOT BE OPENED TO TRAFFIC UNTIL PERMANENT TRAFFIC CONTROLS ARE IN PLACE, OR UNTIL TEMPORARY TRAFFIC CONTROLS, APPROVED BY THE ENGINEER, ARE INSTALLED. THE CONTRACTOR ASSUMES ALL LIABILITY FOR THE PREMATURE REMOVAL OF TEMPORARY TRAFFIC CONTROLS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REINSTALLATION AND/OR REPLACEMENT OF ALL PERMANENT TRAFFIC CONTROL DEVICES DAMAGED OR REMOVED DURING THE CONSTRUCTION. PERMANENT TRAFFIC CONTROL THAT IS NO LONGER IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE REPLACED IMMEDIATELY. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR MISSING, DAMAGED AND IMPROPERLY PLACED TRAFFIC CONTROL DEVICES.

THE CONTRACTOR SHALL PROVIDE A 24 HOUR CONTACT WHO WILL BE RESPONSIBLE FOR MAINTENANCE OF TRAFFIC FOR THE DURATION OF THE PROJECT.

CONSTRUCTION OPERATIONS SHALL NOT BEGIN UNTIL ALL TEMPORARY TRAFFIC CONTROL DEVICES ARE IN PLACE AND APPROVED BY THE ENGINEER AND THE CITY.

MAINTENANCE OF ALL TRAFFIC CONTROL DEVICES INCLUDING DRUMS, SIGNS, BARRICADES, SIGN BOARDS, DETOUR SIGNAGE, ETC., SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

STEADY-BURNING, TYPE "C" LIGHTS SHALL BE REQUIRED ON ALL BARRICADES, DRUMS, AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT.

IF THE CITY ENGINEER DETERMINES THAT THE CONTRACTOR IS NOT PROVIDING PROPER PROVISIONS FOR TRAFFIC CONTROL, THE CITY ENGINEER SHALL ASSIGN UNIFORMED, OFF-DUTY POLICE OFFICERS TO THE PROJECT AT NO COST TO THE CITY.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

PAYMENT

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH ODOT CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL MAINTENANCE OF TRAFFIC ITEMS, INCLUDING THE FURNISHING, INSTALLATION AND MAINTENANCE OF BUT NOT LIMITED TO: ALTERNATE ROUTE SIGNAGE, FLASHING ARROWS BOARDS, SIGNS, SIGN SUPPORTS, FLAGS, FLAGGERS, BARRICADES, NOTICE OF CLOSURE SIGNS, DRUMS, CONES, CONSTRUCTION FENCING, TEMPORARY PAVEMENT MARKINGS, TRAFFIC COMPACTED SURFACE, MATERIALS AND LABOR FOR MAINTAINING ACCESS TO DRIVEWAYS, PROPERTY OWNER NOTIFICATION/ COORDINATION AND DEVELOPMENT OF THE OPERATIONS SCHEDULE SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 614 – MAINTAINING TRAFFIC, AS PER PLAN, WHICH SHALL INCLUDE ALL LABOR MATERIAL, EQUIPMENT, AND INCIDENTALS TO COMPLETE THE WORK AS DETAILED IN THE PLANS. UNLESS SEPARATELY ITEMIZED IN THE PLANS, NO SEPARATE PAYMENT SHALL BE MADE.

CONSTRUCTION INITIATION

THE CONTRACTOR WILL NOTIFY THE CITY OF DUBLIN 10 DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR WILL IMMEDIATELY INFORM THE CITY OF DUBLIN OF ANY AND ALL DELAYS AND/OR CHANGES REGARDING THE CONSTRUCTION PROJECT. THE CITY ENGINEER WILL PROVIDE CLARIFICATION FOR ANY QUESTIONS ABOUT THE NOTIFICATION REQUIREMENT.

THE CONTRACTOR SHALL SUBMIT A CLOSURE SCHEDULE TO THE CITY OF DUBLIN FOR APPROVAL PRIOR TO INITIATING ANY CLOSURE.

TIME LIMITATION ON DETOUR

TRAFFIC MUST BE MAINTAINED IN BOTH DIRECTIONS AT ALL TIMES.

ITEM 614 – PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 800 FEET AND 650 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. THE PCMS SHALL BE DELINEATED IN ACCORDANCE WITH C&MS 614.03.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEET(S) 10, 12, 13, 15 OF THE PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE CITY OF DUBLIN PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

(THE CONTRACTOR SHALL IMPLEMENT A SYSTEM WHEREBY CHANGEABLE MESSAGES WILL BE IMPLEMENTED WITHIN HOURS FOLLOWING TELEPHONE NOTIFICATION FROM THE PROJECT ENGINEER TO A DESIGNATED PHONE.)

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

(THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR PHONE AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVALENT) SHALL BE FURNISHED FOR USE BY THE DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, AND SHALL BE INSURED AGAINST THEFT.) THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF C&MS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE, AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN
10 SIGN MONTH ASSUMING 2 PCMS
SIGN(S) FOR 5 MONTH(S)

ITEM 614 – WORK ZONE PAVEMENT MARKINGS

THE CONTRACTOR SHALL INSTALL TEMPORARY WORK ZONE PAVEMENT MARKINGS PRIOR TO RE-OPENING THE ROAD TO TRAFFIC. WORK ZONE PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH ODOT CMS 614.11 AND LOCATED AS SHOWN ON PHASED MOT SHEETS.

THE FOLLOWING CONTINGENCY QUANTITIES ARE INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR THIS WORK:

ITEM 614 – WORK ZONE EDGE LINE, CLASS I, YELLOW, 4"	0.07 MILE
ITEM 614 – WORK ZONE LANE LINE, CLASS I, WHITE, 4"	0.07 MILE
ITEM 614 – WORK ZONE CENTER LINE, CLASS I, 12"	0.10 MILE

PRIOR TO PROJECT COMPLETION, THE CONTRACTOR SHALL REMOVE THE TEMPORARY PAVEMENT MARKINGS AND INSTALL PERMANENT PAVEMENT MARKINGS IN ACCORDANCE WITH THE PLAN DETAILS. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH ODOT STANDARD DRAWING MT-99.20 DURING INSTALLATION OF PERMANENT PAVEMENT MARKINGS.

DRUM AND PCB REQUIREMENTS

IN ADDITION TO THE REQUIREMENTS OF THE PLANS, SPECIFICATION AND PROPOSAL, DRUMS FURNISHED BY THE CONTRACTOR SHALL BE IN GOOD CONDITION AND MEET RETROREFLECTIVITY STANDARDS. PAYMENT FOR DRUMS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.

SIGNS, BARRICADES AND VERTICAL PANELS

ALL CONSTRUCTION SIGNS, BARRICADES, VERTICAL PANELS, AND DRUMS SHALL CONFORM TO ODOT AND THE LATEST REVISION OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS.

ALL CONSTRUCTION SIGNS SHALL BE INSTALLED AND COVERED BEFORE CONSTRUCTION BEGINS. AFTER CONSTRUCTION SIGN INSTALLATION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER THREE WORKING DAYS BEFORE WORK BEGINS AND REQUEST AN INSPECTION OF ALL SIGNAGE.

FACES OF CONSTRUCTION SIGNS AND REFLECTIVE SHEETING ON BARRICADES SHALL BE TYPE "H" (VIP). ALL ORANGE CONSTRUCTION SIGNS SHALL BE FLUORESCENT ORANGE. ALL SHEETING WILL BE TESTED FOR REFLECTIVITY PER ODOT 730.192. VERTICAL PANELS AND DRUM BANDS SHALL BE REFLECTORIZED WITH TYPE "G" (HIGH INTENSITY) SHEETING COMPLYING WITH THE REQUIREMENTS OF 730.19. ALL SIGNS AND BARRICADES, VERTICAL PANELS, AND DRUMS WILL BE LIKE NEW AND IN GOOD CONDITION IN CONFORMANCE WITH QUALITY GUIDELINES FOR TEMPORARY TRAFFIC CONTROL DEVICES AND FEATURES PUBLISHED BY ATSSA.

MAINTENANCE OF ALL CONTRACTOR SUPPLIED SIGNS, BARRICADES, VERTICAL PANELS, AND DRUMS IS THE CONTRACTOR'S RESPONSIBILITY. IF THE CONTRACTOR FAILS TO CORRECT DEFICIENCIES WITHIN FOUR HOURS OF NOTIFICATION, THE CITY WILL CORRECT OR HIRE SOMEONE TO CORRECT THE DEFICIENCIES. THE CONTRACTOR WILL THEN BE BACK CHARGED PER ODOT SPECIFICATION 614.04. IN THE CASE THAT BACK CHARGING THE CONTRACTOR IS NOT APPLICABLE, THE CITY WILL RESCIND AND WITHHOLD ALL PERMITS ISSUED TO THE CONTRACTOR TO WORK WITHIN CITY RIGHT-OF-WAY UNTIL THE ISSUE IS SETTLED.

THESE PROVISIONS SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR OF ANY OF HIS LEGAL RESPONSIBILITIES OR LIABILITIES FOR THE SAFETY OF THE PUBLIC.

ALL BARRICADES AT CLOSURES SHALL HAVE YELLOW TYPE "c" STEADY BURN LIGHTS. ALL BARRELS IN TAPERS SHALL HAVE YELLOW TYPE "c" STEADY BURN LIGHTS.

ALL ADVANCE SIGNING SHALL BE EQUIPPED WITH TYPE "A" FLASHING LIGHTS AND (2) ORANGE FLAGS (24"x24"). LIGHTS ARE NOT REQUIRED ON SIGNS IN PLACE DURING DAYLIGHT HOURS. CONES ARE NOT APPROVED FOR USE AT NIGHT.

DRUMS SHALL BE PLACED AS FOLLOWS: 25' C/C ON TANGENTS, 10' C/C ON TAPERS, AND 8' C/C IN RADII.

PEDESTRIAN ACCESS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND SAFE MOVEMENT OF PEDESTRIANS THROUGH, AROUND, AND AWAY FROM THE CONSTRUCTION SITE. THE SAFETY OF PEDESTRIAN TRAFFIC SHALL BE CONSIDERED AT ALL TIMES IN THE PROVISION OF TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS AND NOTES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE LIGHTS, SIGNS, BARRICADES, AND OTHER WARNINGS TO PHYSICALLY SEPARATE THE PEDESTRIAN FROM HAZARDS INCIDENTAL TO THE CONSTRUCTION OPERATIONS SUCH AS OPEN EXCAVATIONS, ETC. AT ALL TIMES, THE PEDESTRIAN MOT SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. BOTH PEDESTRIAN BRIDGES SHALL REMAIN OPEN AT ALL TIMES UNLESS PRIOR APPROVAL FROM THE CITY OF DUBLIN.

ALL COST ASSOCIATED WITH MAINTAINING PEDESTRIAN TRAFFIC SHALL BE INCIDENTAL TO ITEM 614 – MAINTAINING TRAFFIC, AS PER PLAN.

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ITEM 614 – LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED IN THIS NOTE WILL NOT BE PERMITTED AT PROJECT COST UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE ENGINEER. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. IN ADDITION TO THE REQUIREMENTS OF ODOT CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- A. FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED. IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.
- B. DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED. THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES. THE CONTRACTOR SHALL UTILIZE ANY OF THE FOLLOWING LAW ENFORCEMENT AGENCIES: CITY OF DUBLIN (614-410-4800), FRANKLIN COUNTY SHERIFF'S OFFICE, OR OHIO STATE HIGHWAY PATROL.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614 – LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN. THE FOLLOWING ESTIMATED QUANTITY HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614 – LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN 40 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED. ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614 – LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN.

ITEM 614 – WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NONGATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING'S APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS, FROM THE ROADWAY STANDARDS APPROVED PRODUCTS WEB PAGE.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

PROJECT SUMMARY

THIS PROJECT WILL PROVIDE IMPROVEMENTS BY REPLACING THE EXISTING MUIRFIELD DRIVE TWIN BRIDGES OVER NORTH FORK INDIAN RUN. MUIRFIELD DRIVE SHALL REMAIN OPEN TO TRAFFIC IN BOTH DIRECTIONS AT ALL TIMES. ONE LANE IN EACH DIRECTION SHALL BE MAINTAINED ON MUIRFIELD DRIVE AT THE PROJECT LOCATION.

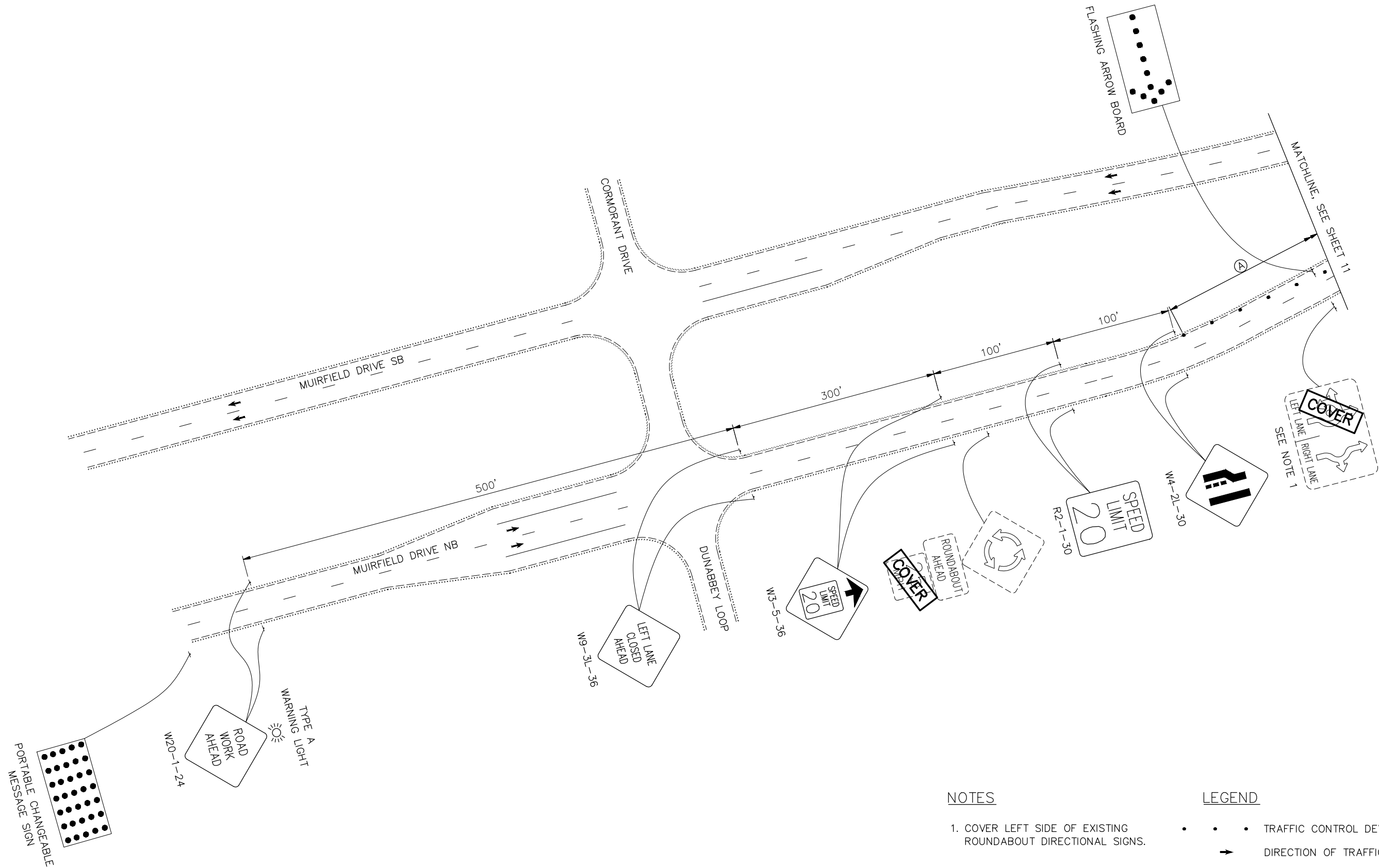
THIS WORK SHALL BE DONE IN THE FOLLOWING PHASES:

- PHASE 1:
- A. CLOSE NORTHBOUND LANES ON MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN UTILIZING TWO-WAY, ONE-LANE TRAFFIC BY CONSTRUCTING A PAIR OF CROSSOVERS CONNECTING INTO THE MUIRFIELD/BRAND ROUNDABOUT TO THE SOUTH, WHILE UTILIZING THE WIDE PAVED MEDIAN ACCESS TO MOORS PLACE TO THE NORTH IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC PLANS.
 - B. PERFORM BRIDGE WORK (SEE SUGGESTED CONSTRUCTION PROCEDURE ON SHEET 24 OF 45).
 - C. UPON COMPLETION OF BRIDGE WORK, RE-OPEN NORTHBOUND LANES ON EMERALD PARKWAY OVER NORTH FORK INDIAN RUN FOR TRAFFIC.
- PHASE 2:
- A. CLOSE SOUTHBOUND LANES ON MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN UTILIZING TWO-WAY, ONE-LANE TRAFFIC BY USING A PAIR OF CROSSOVERS CONNECTING INTO THE MUIRFIELD/BRAND ROUNDABOUT TO THE SOUTH, WHILE UTILIZING THE WIDE PAVED MEDIAN ACCESS TO MOORS PLACE TO THE NORTH IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC PLANS.
 - B. PERFORM BRIDGE WORK (SEE SUGGESTED CONSTRUCTION PROCEDURE ON SHEET 24 OF 45).
 - C. UPON COMPLETION OF BRIDGE WORK, RE-OPEN SOUTHBOUND LANES ON EMERALD PARKWAY OVER NORTH FORK INDIAN RUN FOR TRAFFIC.

CALCULATED
CJK
CHECKED
SKP

MAINTENANCE OF TRAFFIC NOTES

MUIRFIELD DRIVE



NOTES

1. COVER LEFT SIDE OF EXISTING ROUNDABOUT DIRECTIONAL SIGNS.

LEGEND

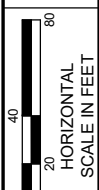
- • • TRAFFIC CONTROL DEVICE
- DIRECTION OF TRAFFIC
- Ⓐ 225' LANE CLOSURE TAPER

CALCULATED 0
 AJK
 CHECKED
 JMZ

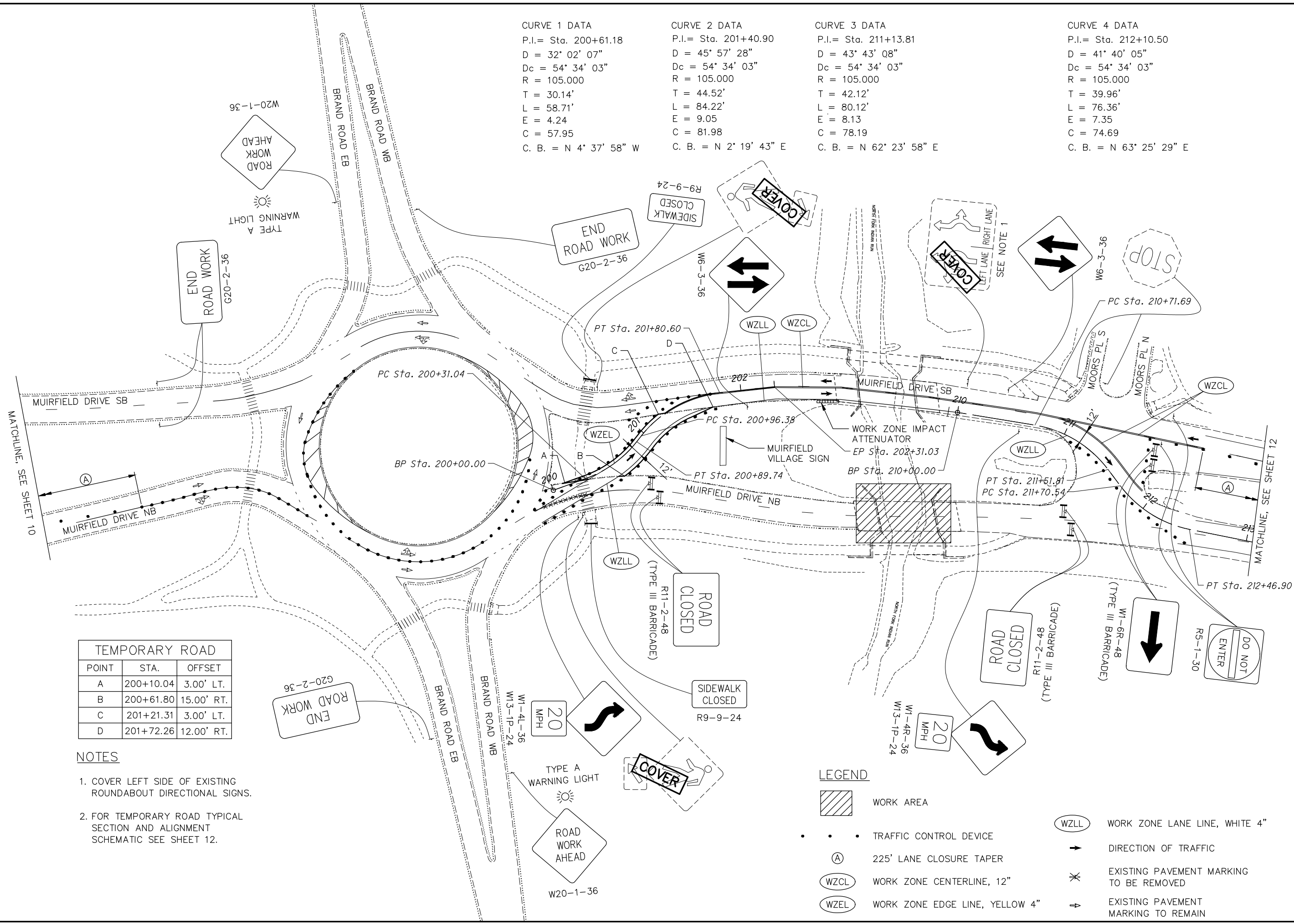
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 HORIZONTAL
 SCALE IN FEET

MAINTENANCE OF TRAFFIC - PHASE 1

MUIRFIELD DRIVE



CURVE 1 DATA	CURVE 2 DATA	CURVE 3 DATA	CURVE 4 DATA
P.I.= Sta. 200+61.18	P.I.= Sta. 201+40.90	P.I.= Sta. 211+13.81	P.I.= Sta. 212+10.50
D = 32° 02' 07"	D = 45° 57' 28"	D = 43° 43' 08"	D = 41° 40' 05"
Dc = 54° 34' 03"	Dc = 54° 34' 03"	Dc = 54° 34' 03"	Dc = 54° 34' 03"
R = 105.000	R = 105.000	R = 105.000	R = 105.000
T = 30.14'	T = 44.52'	T = 42.12'	T = 39.96'
L = 58.71'	L = 84.22'	L = 80.12'	L = 76.36'
E = 4.24	E = 9.05	E = 8.13	E = 7.35
C = 57.95	C = 81.98	C = 78.19	C = 74.69
C. B. = N 4° 37' 58" W	C. B. = N 2° 19' 43" E	C. B. = N 62° 23' 58" E	C. B. = N 63° 25' 29" E



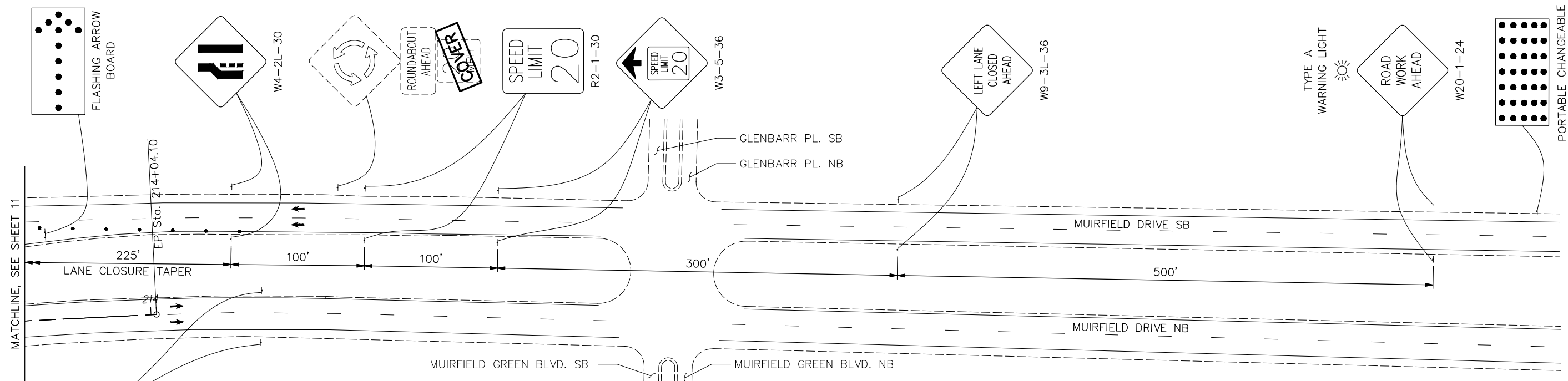
TEMPORARY ROAD		
POINT	STA.	OFFSET
A	200+10.04	3.00' LT.
B	200+61.80	15.00' RT.
C	201+21.31	3.00' LT.
D	201+72.26	12.00' RT.

- NOTES**
- COVER LEFT SIDE OF EXISTING ROUNDABOUT DIRECTIONAL SIGNS.
 - FOR TEMPORARY ROAD TYPICAL SECTION AND ALIGNMENT SCHEMATIC SEE SHEET 12.

LEGEND

	WORK AREA		WORK ZONE LANE LINE, WHITE 4"
	TRAFFIC CONTROL DEVICE		DIRECTION OF TRAFFIC
	225' LANE CLOSURE TAPER		EXISTING PAVEMENT MARKING TO BE REMOVED
	WORK ZONE CENTERLINE, 12"		EXISTING PAVEMENT MARKING TO REMAIN
	WORK ZONE EDGE LINE, YELLOW 4"		

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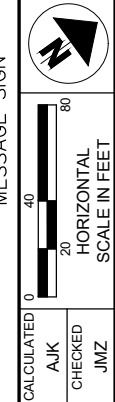
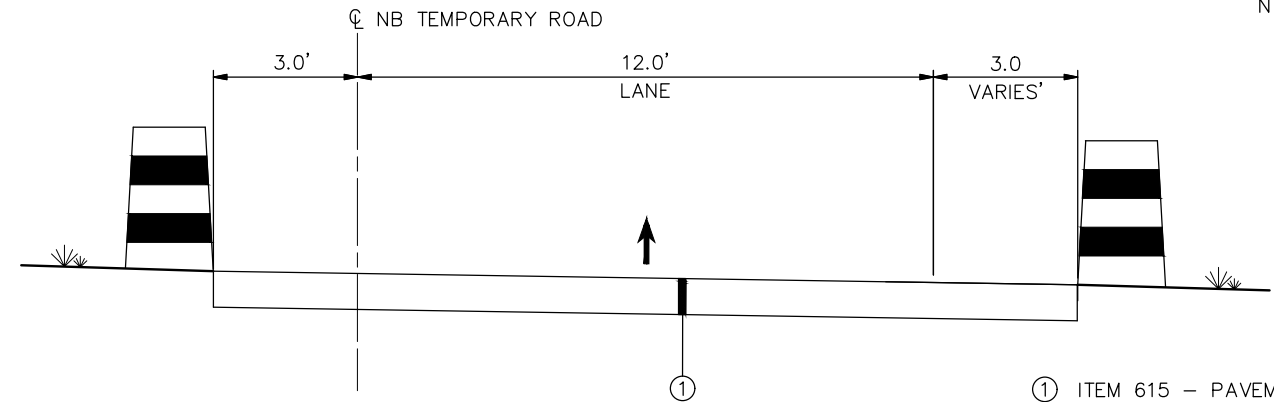
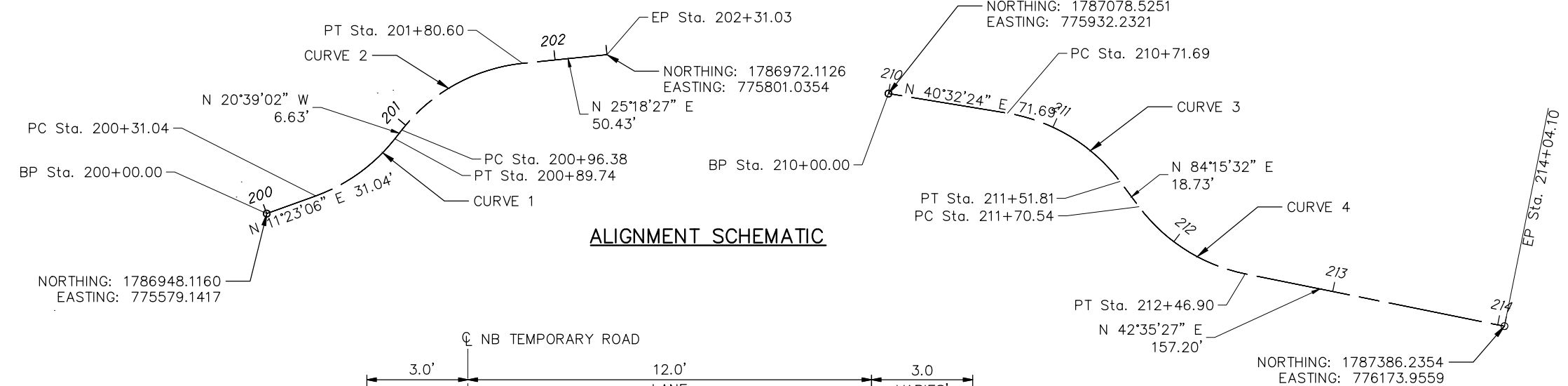
G20-2-36
END ROAD WORK

CURVE 1 DATA
 P.I.= Sta. 200+61.18
 D = 32' 02' 07"
 Dc = 54' 34' 03"
 R = 105.000
 T = 30.14'
 L = 58.71'
 E = 4.24
 C = 57.95
 C. B. = N 4' 37' 58" W

CURVE 2 DATA
 P.I.= Sta. 201+40.90
 D = 45' 57' 28"
 Dc = 54' 34' 03"
 R = 105.000
 T = 44.52'
 L = 84.22'
 E = 9.05
 C = 81.98
 C. B. = N 2' 19' 43" E

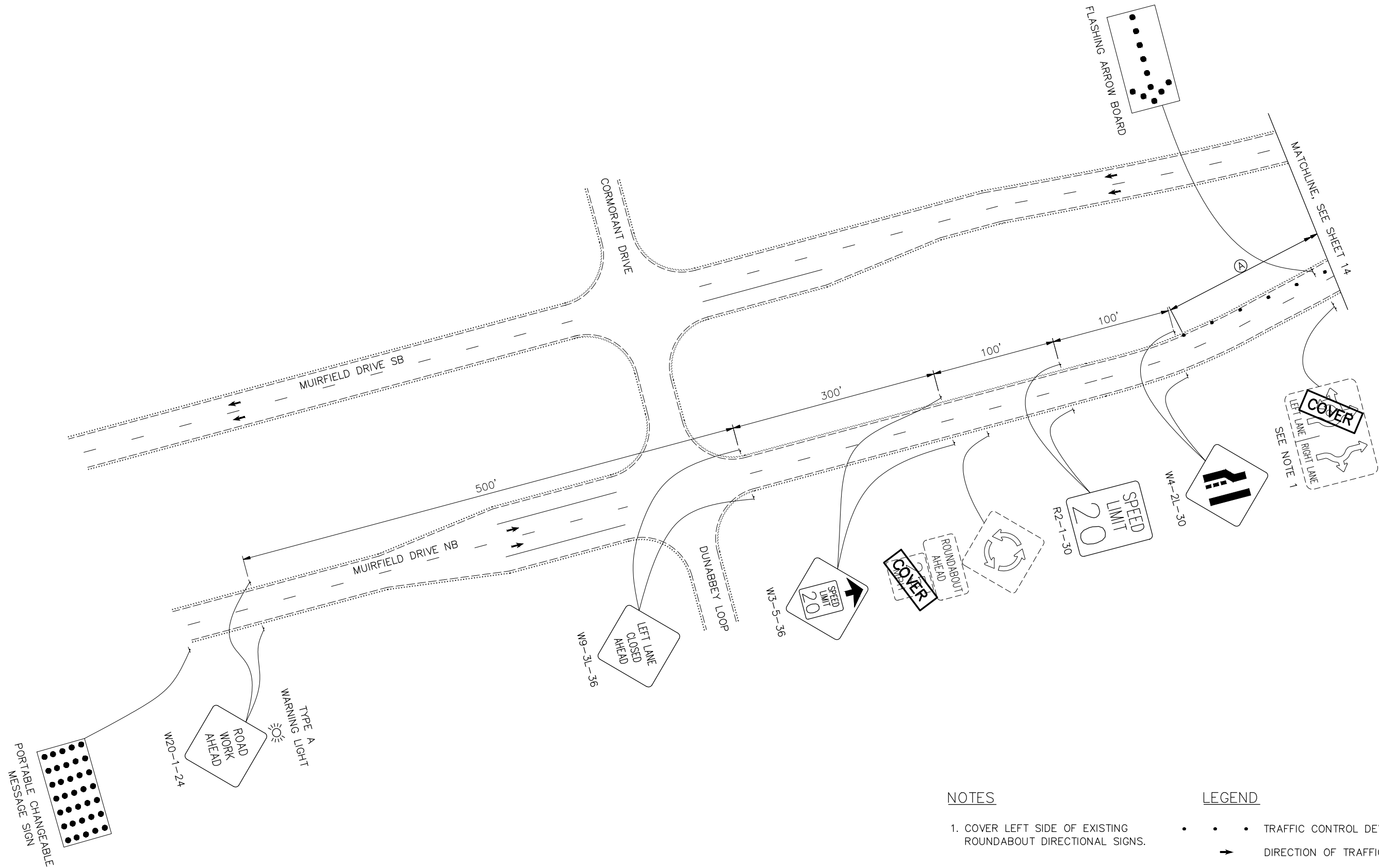
CURVE 3 DATA
 P.I.= Sta. 211+13.81
 D = 43' 43' 08"
 Dc = 54' 34' 03"
 R = 105.000
 T = 42.12'
 L = 80.12'
 E = 8.13
 C = 78.19
 C. B. = N 62' 23' 58" E

CURVE 4 DATA
 P.I.= Sta. 212+10.50
 D = 41' 40' 05"
 Dc = 54' 34' 03"
 R = 105.000
 T = 39.96'
 L = 76.36'
 E = 7.35
 C = 74.69
 C. B. = N 63' 25' 29" E



MAINTENANCE OF TRAFFIC - PHASE 1

MUIRFIELD DRIVE



NOTES

- 1. COVER LEFT SIDE OF EXISTING ROUNDABOUT DIRECTIONAL SIGNS.

LEGEND

- • • TRAFFIC CONTROL DEVICE
- ➔ DIRECTION OF TRAFFIC
- Ⓐ 225' LANE CLOSURE TAPER

CALCULATED 0
 AJK
 CHECKED JMZ

0 20 40 80
 HORIZONTAL SCALE IN FEET

MAINTENANCE OF TRAFFIC - PHASE 2

MUIRFIELD DRIVE

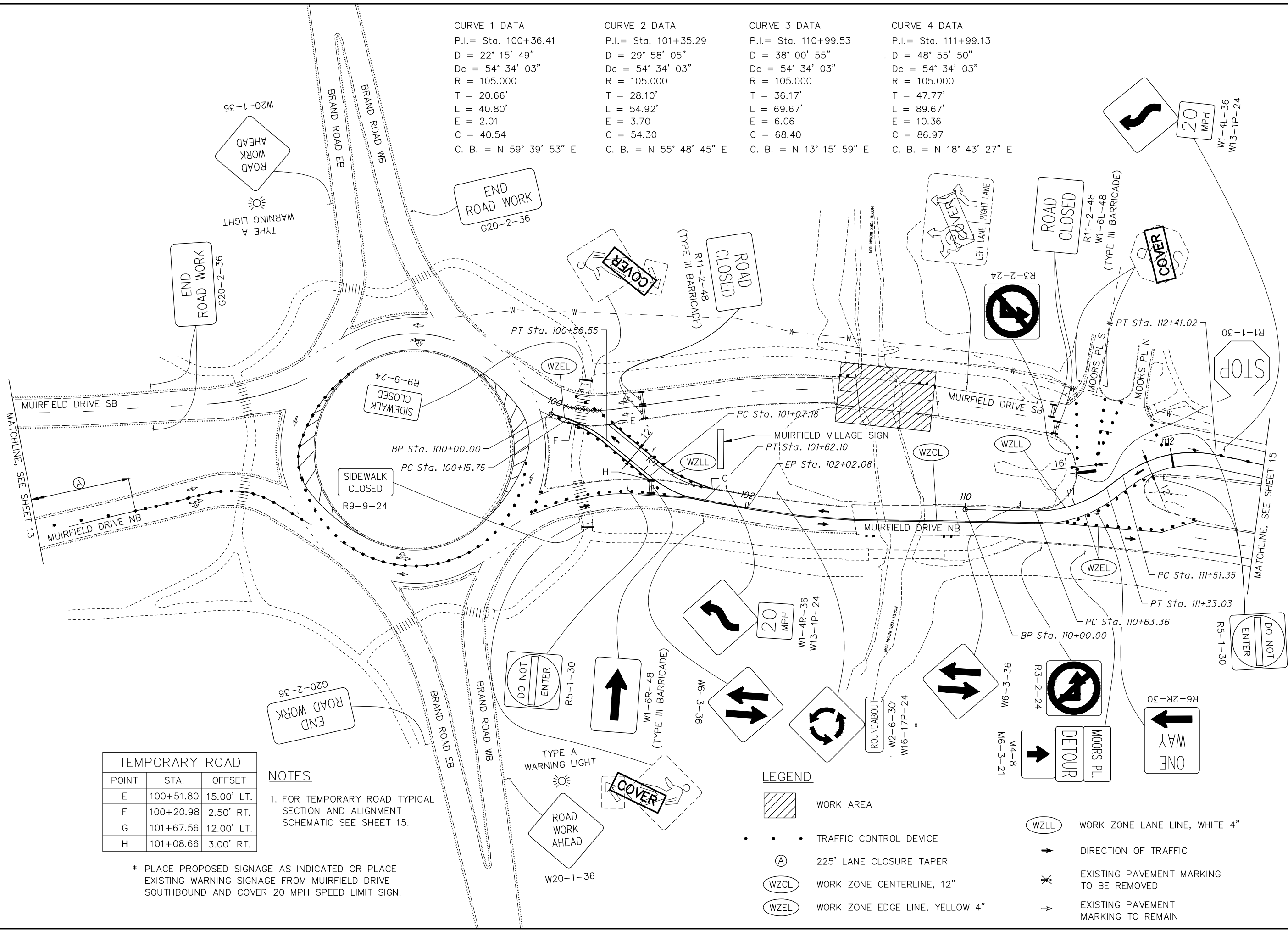
CURVE 1 DATA	CURVE 2 DATA	CURVE 3 DATA	CURVE 4 DATA
P.I. = Sta. 100+36.41	P.I. = Sta. 101+35.29	P.I. = Sta. 110+99.53	P.I. = Sta. 111+99.13
D = 22° 15' 49"	D = 29° 58' 05"	D = 38° 00' 55"	D = 48° 55' 50"
Dc = 54° 34' 03"	Dc = 54° 34' 03"	Dc = 54° 34' 03"	Dc = 54° 34' 03"
R = 105.000	R = 105.000	R = 105.000	R = 105.000
T = 20.66'	T = 28.10'	T = 36.17'	T = 47.77'
L = 40.80'	L = 54.92'	L = 69.67'	L = 89.67'
E = 2.01	E = 3.70	E = 6.06	E = 10.36
C = 40.54	C = 54.30	C = 68.40	C = 86.97
C. B. = N 59° 39' 53" E	C. B. = N 55° 48' 45" E	C. B. = N 13° 15' 59" E	C. B. = N 18° 43' 27" E

TEMPORARY ROAD		
POINT	STA.	OFFSET
E	100+51.80	15.00' LT.
F	100+20.98	2.50' RT.
G	101+67.56	12.00' LT.
H	101+08.66	3.00' RT.

NOTES

1. FOR TEMPORARY ROAD TYPICAL SECTION AND ALIGNMENT SCHEMATIC SEE SHEET 15.

* PLACE PROPOSED SIGNAGE AS INDICATED OR PLACE EXISTING WARNING SIGNAGE FROM MUIRFIELD DRIVE SOUTHBOUND AND COVER 20 MPH SPEED LIMIT SIGN.

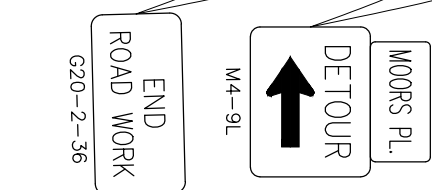
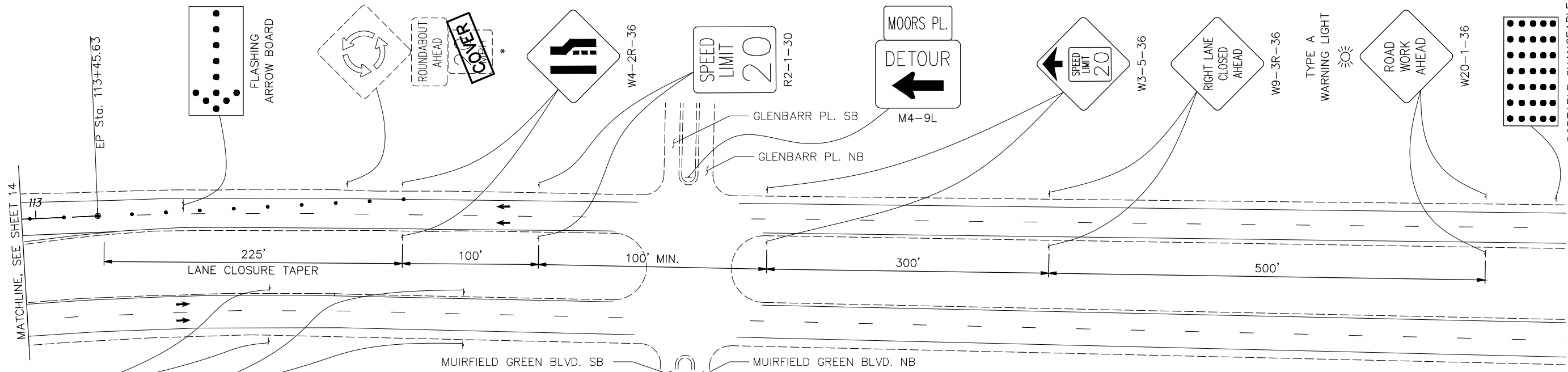


LEGEND

- WORK AREA
- TRAFFIC CONTROL DEVICE
- 225' LANE CLOSURE TAPER
- WORK ZONE CENTERLINE, 12"
- WORK ZONE EDGE LINE, YELLOW 4"
- WORK ZONE LANE LINE, WHITE 4"
- DIRECTION OF TRAFFIC
- EXISTING PAVEMENT MARKING TO BE REMOVED
- EXISTING PAVEMENT MARKING TO REMAIN

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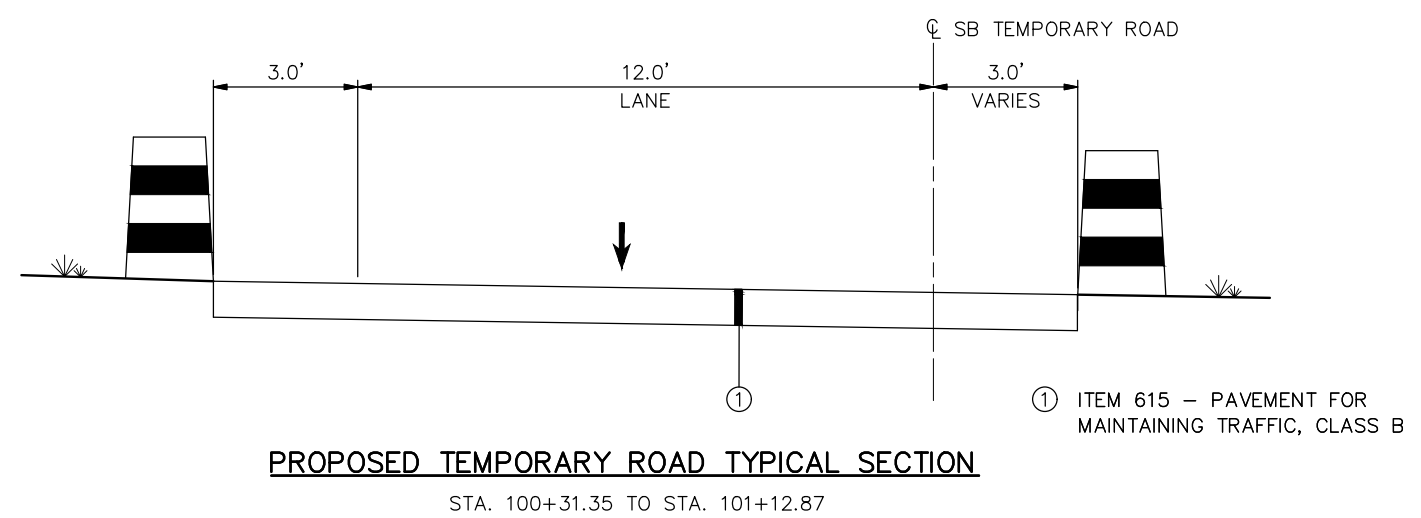
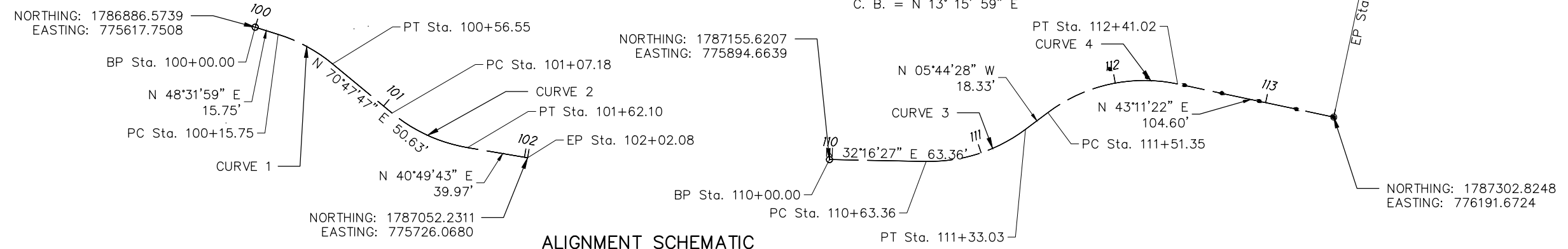
CURVE 1 DATA
 P.I.= Sta. 100+36.41
 D = 22° 15' 49"
 Dc = 54' 34' 03"
 R = 105.000
 T = 20.66'
 L = 40.80'
 E = 2.01
 C = 40.54
 C. B. = N 59° 39' 53" E

CURVE 2 DATA
 P.I.= Sta. 101+35.29
 D = 29° 58' 05"
 Dc = 54' 34' 03"
 R = 105.000
 T = 28.10'
 L = 54.92'
 E = 3.70
 C = 54.30
 C. B. = N 55° 48' 45" E

CURVE 3 DATA
 P.I.= Sta. 110+99.53
 D = 38° 00' 55"
 Dc = 54' 34' 03"
 R = 105.000
 T = 36.17'
 L = 69.67'
 E = 6.06
 C = 68.40
 C. B. = N 13° 15' 59" E

CURVE 4 DATA
 P.I.= Sta. 111+99.13
 D = 48° 55' 50"
 Dc = 54' 34' 03"
 R = 105.000
 T = 47.77'
 L = 89.67'
 E = 10.36
 C = 86.97
 C. B. = N 18° 43' 27" E

* KEEP IN PLACE OR MOVE TO THE LOCATED NOTED ON SHEET 14.



LEGEND

- • • TRAFFIC CONTROL DEVICE
- DIRECTION OF TRAFFIC



CALCULATED 0
 AJK
 CHECKED
 JMJ

MUIRFIELD DRIVE
 MAINTENANCE OF TRAFFIC - PHASE 2
 15
 45

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ITEM	DESCRIPTION	QUANTITY	UNIT	SEE SHEET NO.
ROADWAY				
201	CLEARING AND GRUBBING	1	LUMP	
202	PAVEMENT REMOVED AND DISPOSED OF	332	SY	
202	CURB REMOVED AND DISPOSED OF	240	LF	
202	CURB AND GUTTER REMOVED AND DISPOSED OF	95	LF	
202	PIPE REMOVED AND DISPOSED OF, 24" AND UNDER	7	LF	
202	GUARDRAIL REMOVED AND DISPOSED OF	234	LF	
202	WALK REMOVED AND DISPOSED OF	459	SF	
202	CATCH BASIN REMOVED AND DISPOSED OF	1	EACH	
203	EXCAVATION, AS PER PLAN	40	CY	7
203	EMBANKMENT, AS PER PLAN	14	CY	7
204	PROOF ROLLING	2	HR	7
204	SUBGRADE COMPACTION	215	SY	
204	EXCAVATION OF SUBGRADE	7	CY	7
204	GRANULAR EMBANKMENT, NO. 2 STONE	7	CY	7
606	APPROACH RAIL	252	LF	
606	RAIL TERMINATION	8	EACH	
608	4" CONCRETE WALK	306	SF	
608	CURB RAMP	153	SF	
608	DETECTABLE WARNING PANELS, AS PER PLAN	16	SF	7
SPECIAL	TREE PROTECTION FENCE	450	LF	7
EROSION CONTROL				
207	PERMANENT FILTER FABRIC FENCE, WATTLES	800	LF	
207	INLET PROTECTION	2	EACH	
653	TOPSOIL FURNISHED AND PLACED (T=3"), AS PER PLAN	133	CY	7
659	SEEDING AND MULCHING, AS PER PLAN	1,600	SY	7
659	COMMERCIAL FERTILIZER	0.22	TON	7
659	WATER	5	MGAL	7
670	SLOPE EROSION PROTECTION MAT, TYPE G, AS PER PLAN	45	SY	7
SPECIAL	CONCRETE WASHOUT AREA	1	LUMP	21
DRAINAGE				
604	CURB AND GUTTER INLET WITH BIKE SAFE GRATE, AS PER PLAN	1	EACH	7
605	4 INCH PIPE UNDERDRAINS (INCLUDING #57 AGGREGATE BASE)	46	LF	
901	4 INCH PIPE, 720.01	22	LF	
901	12 INCH PIPE, 706.02, WITH TYPE 1 BEDDING	5	LF	
SPECIAL	IRRIGATION PIPE	1	LUMP	7
PAVEMENT				
254	PAVEMENT PLANING, ASPHALT CONCRETE, 1½"	1,750	SY	
301	6" ASPHALT CONCRETE BASE, PG64-22	27	CY	
304	6" AGGREGATE BASE	27	CY	
407*	NTSS-1HM TRACKLESS TACK COAT FOR INTERMEDIATE COURSE (0.055 GAL/SY)	97	GAL	
441*	1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22, MT	168	TON	
441*	1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448), PG64-22, MT	32	TON	

ITEM	DESCRIPTION	QUANTITY	UNIT	SEE SHEET NO.
499	COC 6 CONCRETE	6	CY	
609	COMBINATION CURB AND GUTTER, TYPE STANDARD	60	LF	
609	CURB, STRAIGHT, 18"	213	LF	
TRAFFIC CONTROL*				
630	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	3	EACH	
630	REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION	3	EACH	
644	EDGE LINE, 4"	0.43	MILE	
644	CHANNELIZING LINE, 8"	319	LF	
644	CROSSWALK LINE	60	LF	
644	LANE LINE, 4"	0.24	MILE	
STRUCTURE OVER 20 FOOT SPAN FRA-MURFD-0223LR (SEE SHEET 26)				
MAINTENANCE OF TRAFFIC*				
614	MAINTAINING TRAFFIC, AS PER PLAN	1	LS	8
614	PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN	10	SIGN MONTH	8
614	WORK ZONE EDGE LINE, CLASS I, YELLOW, 4"	0.21	MILE	
614	WORK ZONE LANE LINE, CLASS I, WHITE, 4"	0.20	MILE	
614	WORK ZONE CENTER LINE, CLASS I, 12"	0.10	MILE	
614	IMPACT ATTENUATOR, TYPE 2	2	EACH	9
614	LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN	40	HR	9
615	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS B	378	SY	
SPECIAL	FLASHING ARROW PANEL	2	EACH	
INCIDENTALS				
623	CONSTRUCTION LAYOUT STAKES AND SURVEY MONUMENTS	1	LS	
624	MOBILIZATION	1	LS	
SPECIAL	PROOF SURVEY	1	LS	6

* DENOTES OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (CURRENT EDITION). ALL OTHER ITEMS REFERENCE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS.

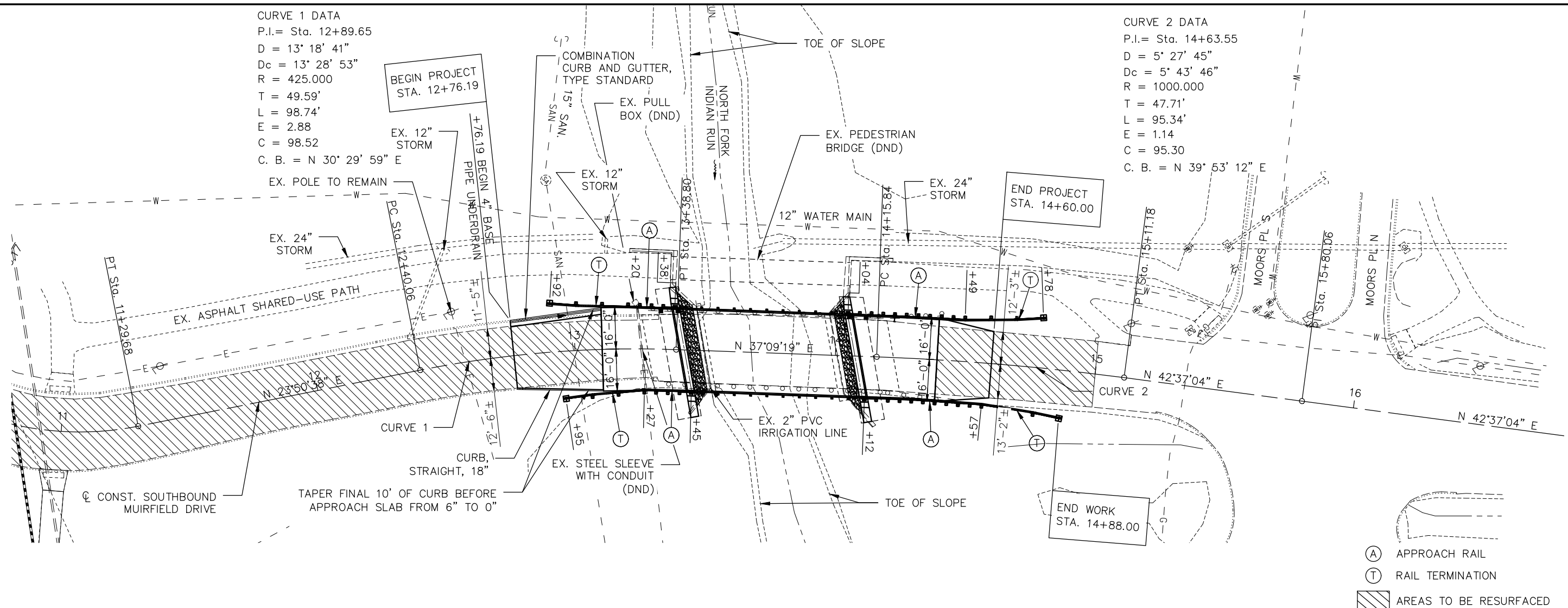
CALCULATED
CJK
CHECKED
JMZ

GENERAL SUMMARY

MUIRFIELD DRIVE

CURVE 1 DATA
 P.I.= Sta. 12+89.65
 D = 13° 18' 41"
 Dc = 13° 28' 53"
 R = 425.000
 T = 49.59'
 L = 98.74'
 E = 2.88
 C = 98.52
 C. B. = N 30° 29' 59" E

CURVE 2 DATA
 P.I.= Sta. 14+63.55
 D = 5° 27' 45"
 Dc = 5° 43' 46"
 R = 1000.000
 T = 47.71'
 L = 95.34'
 E = 1.14
 C = 95.30
 C. B. = N 39° 53' 12" E



- (A) APPROACH RAIL
- (T) RAIL TERMINATION
- AREAS TO BE RESURFACED

PROPOSED GRADE ELEVATIONS															PROPOSED GRADE ELEVATIONS						
920																					920
915																					915
910																					910
905																					905
900																					900
895																					895
890																					890
885																					885
EXISTING GRADE ELEVATIONS	906.60	906.04	905.63	894.76	896.29	905.68	906.29	906.71	907.08												EXISTING GRADE ELEVATIONS
	12+00		13+00	14+00		15+00		16+00													

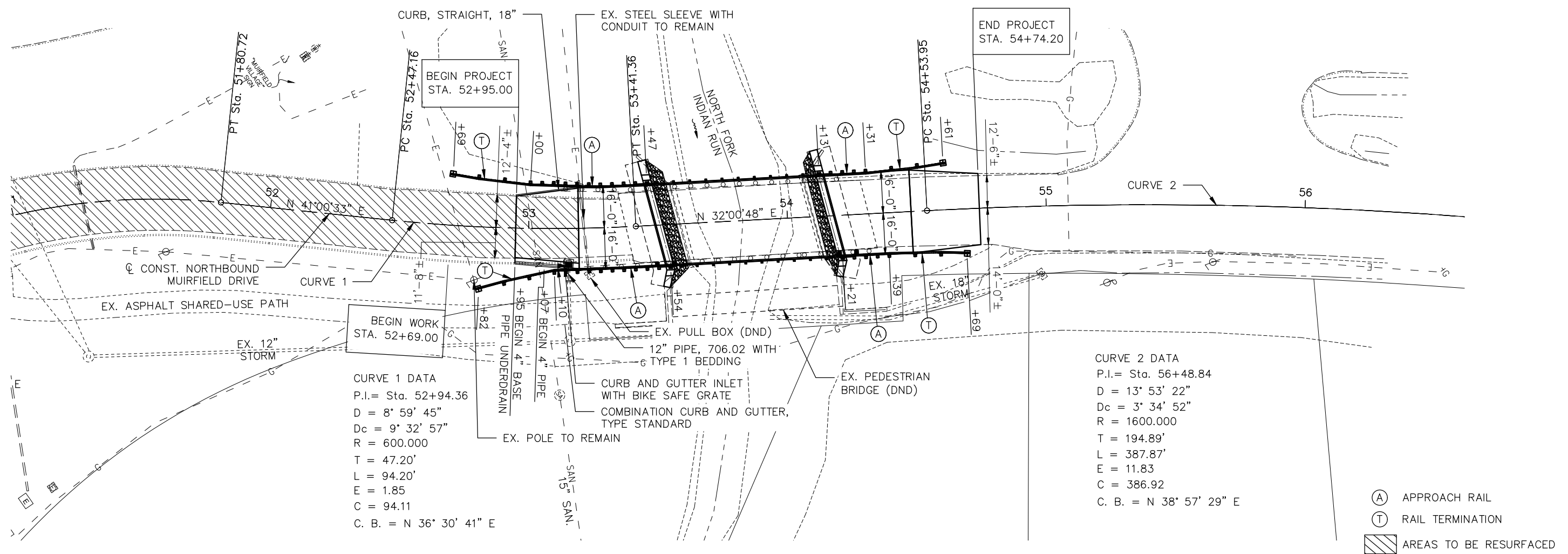


PLAN AND PROFILE - MUIRFIELD SOUTHBOUND
 STA. 12+00 TO STA. 16+00

MUIRFIELD DRIVE

17
45

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CURVE 1 DATA
 P.I. = Sta. 52+94.36
 D = 8° 59' 45"
 Dc = 9° 32' 57"
 R = 600.000
 T = 47.20'
 L = 94.20'
 E = 1.85
 C = 94.11
 C. B. = N 36° 30' 41" E

CURVE 2 DATA
 P.I. = Sta. 56+48.84
 D = 13° 53' 22"
 Dc = 3° 34' 52"
 R = 1600.000
 T = 194.89'
 L = 387.87'
 E = 11.83
 C = 386.92
 C. B. = N 38° 57' 29" E

- (A) APPROACH RAIL
- (T) RAIL TERMINATION
- AREAS TO BE RESURFACED

PROPOSED GRADE ELEVATIONS	GRADE BREAK: STA. = 52+95.00 ELEV. = 904.62±		K = 64.00 P.V.I. STA 53+48.99 ELEV = 904.45± 97.56' VC		GRADE BREAK: STA. = 54+74.20 ELEV. = 905.98±		PROPOSED GRADE ELEVATIONS		
920	TO REMAIN		LOW POINT: STA. 53+19.51 ELEV. = 904.57		TO REMAIN		920		
915	EX. SANITARY MANHOLE STA. 53+11.69, 64.28' RT EX. GRATE ELEV. = 901.64		EX. CATCH BASIN NO. 3A, AS PER PLAN STA. 53+15.47, 43.39' RT GRATE ELEV. = 904.04		EX. CATCH BASIN NO. 3A, AS PER PLAN STA. 54+97.60, 26.01' RT GRATE ELEV. = 905.29		915		
910	EX. 15" (SE) = 888.19 EX. 15" (NW) = 888.26		EX. 12" (NE) = 896.01 EX. 12" (SW) = 896.07 EX. 12" (NW) = 896.13		EX. 12" (SE) = 898.58		910		
905	4" STM (TO REMAIN)		12" STM (TO REMAIN)		18" STM (TO REMAIN)		905		
900	3" STEEL SLEEVE WITH CONDUIT (TO REMAIN)		12" STM (TO REMAIN)		18" STM (TO REMAIN)		900		
895	12" STM (TO REMAIN)		12" STM (TO REMAIN)		18" STM (TO REMAIN)		895		
890	15" SAN (TO REMAIN)		15" SAN (TO REMAIN)		EX. GAS (TO REMAIN)		890		
885	15" SAN (TO REMAIN)		15" SAN (TO REMAIN)		EX. GAS (TO REMAIN)		885		
EXISTING GRADE ELEVATIONS	905.69	904.99	904.57	904.91	895.79	905.70	906.70	907.13	EXISTING GRADE ELEVATIONS
	52+00	53+00	54+00	55+00	56+00	57+00	58+00	59+00	

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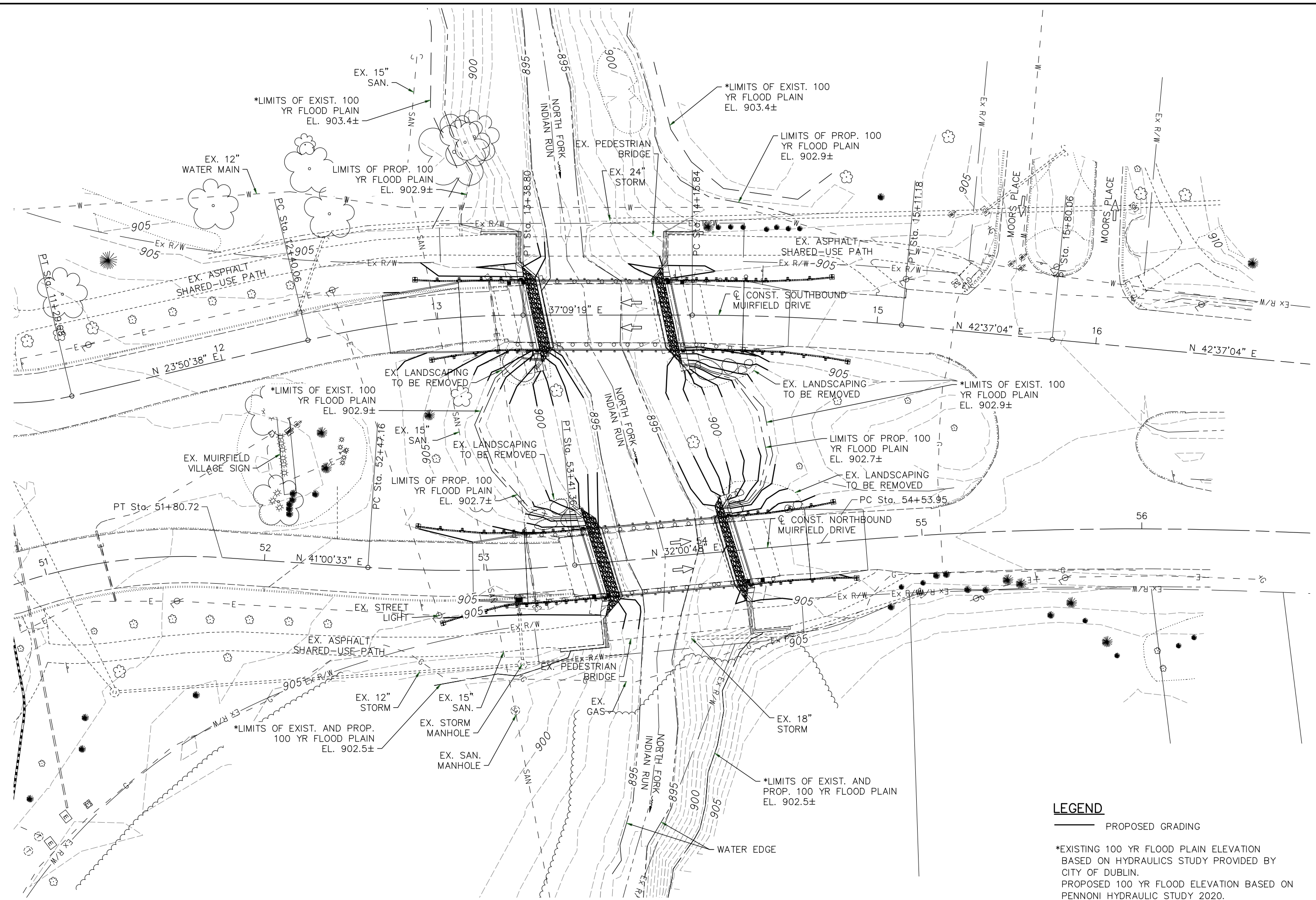


CALCULATED 0
CJ/K
CHECKED
CTL

GRADING PLAN

MUIRFIELD DRIVE

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GRADING PLAN

LEGEND

- PROPOSED GRADING
- - - *EXISTING 100 YR FLOOD PLAIN ELEVATION BASED ON HYDRAULICS STUDY PROVIDED BY CITY OF DUBLIN.
- - - PROPOSED 100 YR FLOOD ELEVATION BASED ON PENNONI HYDRAULIC STUDY 2020.

GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE SEDIMENT CONTROL AT ALL POINTS WHERE WATER LEAVES THE PROJECT, INCLUDING WATERWAYS, OVERLAND SHEET FLOW, AND STORM SEWERS, WHETHER SPECIFICALLY SHOWN ON THE PLANS OR NOT.
2. ACCEPTED METHODS OF PROVIDING EROSION/SEDIMENT CONTROL INCLUDE BUT ARE NOT LIMITED TO: SEDIMENT FILTERS, SILT FILTER FENCE, ROCK CHECK DAMS, AND TEMPORARY GROUND COVER. THE USE OF STRAW BALES IS PROHIBITED.
3. THE CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE OF THE WORK AREA AT ALL TIMES CONSISTENT WITH EROSION CONTROL PRACTICES.
4. DISTURBED AREAS THAT WILL REMAIN UNWORKED FOR 14 DAYS OR MORE SHALL BE SEEDED WITHIN 7 CALENDAR DAYS OF THE DISTURBANCE. OTHER SEDIMENT CONTROLS THAT ARE INSTALLED SHALL BE MAINTAINED UNTIL VEGETATIVE GROWTH HAS BEEN ESTABLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY SEDIMENT DEVICES AT THE CONCLUSION OF CONSTRUCTION BUT NOT BEFORE GROWTH OF PERMANENT GROUND COVER.
5. ALL DENUDED AREAS, INCLUDING STOCKPILED TOPSOIL AND EXCAVATED MATERIAL, ARE TO BE PROTECTED THROUGH THE USE OF TEMPORARY SEEDING, OR COVERED WITH STRAW MULCH.
6. FINAL GRADING WILL BE CONSISTENT WITH PRECONSTRUCTION TOPOGRAPHY TO MAINTAIN DRAINAGE AND AESTHETICS.
7. REMOVE ONLY THE TREES, SHRUBS, AND GRASSES THAT MUST BE REMOVED TO PERMIT ACTUAL CONSTRUCTION. PROTECT THE REMAINING TO PRESERVE THEIR AESTHETIC AND EROSION CONTROL VALUE.
8. SETTLEMENT FACILITIES, SEDIMENT FILTERS, PERIMETER CONTROLS, AND OTHER PRACTICES INTENDED TO TRAP SEDIMENT SHALL BE IMPLEMENTED AS THE FIRST STEP OF GRADING OR CONSTRUCTION AND WITHIN 7 DAYS FROM THE START OF GRUBBING. THEY SHALL CONTINUE TO FUNCTION UNTIL THE UPSLOPE DEVELOPMENT AREA IS RESTABILIZED.
9. BACKFILL TRENCHES IMMEDIATELY AFTER USE. SEED AND MULCH TRENCH AREA WITHIN 7 DAYS AFTER AREA OR SECTION HAS OPENED.
10. STORM SEWER INLET PROTECTION – ALL STORM SEWER INLETS WHICH ACCEPT WATER RUNOFF FROM THE PROJECT AREA SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER WILL NOT ENTER THE STORM SEWER SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT, UNLESS THE STORM SEWER SYSTEM DRAINS TO A SETTLING FACILITY. THESE CONTROLS SHALL BE SELECTED AND LOCATED AS INDICATED IN THE PLANS AND AS DIRECTED BY THE CITY ENGINEER.
11. WORKING IN OR CROSSING STREAMS – STREAMS INCLUDING BED AND BANKS SHALL BE RESTABILIZED IMMEDIATELY AFTER IN-CHANNEL WORK IS COMPLETED, INTERRUPTED, OR STOPPED. TO THE EXTENT PRACTICABLE, CONSTRUCTION VEHICLES SHALL BE KEPT OUT OF STREAMS. WHERE IN-CHANNEL WORK IS NECESSARY, PRECAUTIONS SHALL BE TAKEN TO STABILIZE THE WORK AREA DURING CONSTRUCTION TO MINIMIZE EROSION. WHERE A STREAM MUST BE CROSSED BY CONSTRUCTION VEHICLES REGULARLY DURING CONSTRUCTION, A TEMPORARY CULVERT SHALL BE PROVIDED.
12. CONSTRUCTION ACCESS ROUTES – MEASURES SHALL BE TAKEN TO PREVENT SOIL TRANSPORT ONTO SURFACES WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, OR ONTO PUBLIC ROADS. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT OFF-SITE TRACKING OF SEDIMENTS BY VEHICLES AND EQUIPMENT IS ELIMINATED.
13. SLOUGHING AND DUMPING – NO SOIL, ROCK, DEBRIS, OR ANY OTHER MATERIAL SHALL BE DUMPED OR PLACED INTO A WATER RESOURCE OR INTO SUCH PROXIMITY THAT IT MAY READILY SLOUGH, SLIP, OR ERODE INTO A WATER RESOURCE UNLESS SUCH DUMPING OR PLACING IS AUTHORIZED BY THE CITY ENGINEER. UNSTABLE SOILS PRONE TO SLIPPING OR LANDSLIDING SHALL NOT BE GRADED, EXCAVATED, FILLED, OR HAVE LOADS IMPOSED UPON THEM UNLESS THE WORK IS DONE IN ACCORDANCE WITH A QUALIFIED PROFESSIONAL ENGINEER'S RECOMMENDATIONS TO CORRECT, ELIMINATE, OR ADEQUATELY ADDRESS THE PROBLEMS.
14. MAINTENANCE AND INSPECTION – ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE DESIGNED AND CONSTRUCTED TO MINIMIZE MAINTENANCE REQUIREMENTS. THEY SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. MAINTENANCE AND INSPECTION OF ALL EROSION/SEDIMENT CONTROL DEVICES REQUIRED BY THE CITY ENGINEER SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. INSPECTIONS SHALL BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF THE CITY ENGINEER, ONCE EVERY 7 CALENDAR DAYS AND/OR WITHIN 24 HOURS AFTER A RAIN EVENT OF GREATER THAN 0.5 INCHES IN A 24-HOUR PERIOD. THESE INSPECTIONS SHALL IDENTIFY AREAS CONTRIBUTING TO STORMWATER DISCHARGES ASSOCIATED WITH THE PROJECT; EVALUATE THE ADEQUACY, IMPLEMENTATION, AND MAINTENANCE OF EXISTING AND PROPOSED EROSION/SEDIMENTATION MEASURES; AND DETERMINE WHETHER ADDITIONAL MEASURES ARE REQUIRED.

MAINTENANCE AND INSPECTION (CONT.) – ACCEPTABLE INSPECTION REPORTS SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE CITY ENGINEER WITHIN 48 HOURS OF INSPECTION COMPLETION. THE REPORT SHALL CONTAIN THE RESULTS OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN, A CERTIFICATION THAT THE FACILITY IS IN COMPLIANCE WITH THE PLAN, AND IDENTIFYING ANY INCIDENTS OF NONCOMPLIANCE.

15. OUTFLOWS FROM DEWATERING OPERATIONS – ALL WATER PRODUCED FROM CLEANING AND DEWATERING OPERATIONS, WHETHER SPECIFICALLY FROM TRENCH DEWATERING OPERATIONS OR FROM MORE EXTENSIVE DEWATERING OPERATIONS, SHALL BE DISCHARGED IN SUCH A MANNER AS TO ELIMINATE EROSION FROM SUCH DISCHARGE.
16. ADDITIONAL CONTROLS – THE CONTRACTOR SHALL ENSURE THAT NO SEDIMENTS ARE TRACKED OFF-SITE BY CONSTRUCTION EQUIPMENT, VEHICLES, AND WORKERS. THE CONTRACTOR SHALL ALSO ENSURE THAT NO SOLID OR LIQUID WASTE IS DISCHARGED INTO ANY STORMWATER FLOW.
17. TEMPORARY EROSION AND SEDIMENT CONTROL PLAN AVAILABILITY AND UPDATES – THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO ENSURE THE IMMEDIATE AVAILABILITY OF THE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN ON-SITE. THE CONTRACTOR SHALL ALSO BE SOLELY RESPONSIBLE TO PERFORM ALL UPDATES AND ADJUSTMENTS TO THE TEMPORARY EROSION AND SEDIMENT CONTROL PLAN.

PROHIBITED CONSTRUCTION ACTIVITIES

THE CONTRACTOR SHALL NOT USE CONSTRUCTION PROCEDURES, ACTIVITIES, OR OPERATIONS THAT MAY UNNECESSARILY IMPACT THE NATURAL ENVIRONMENT OR THE PUBLIC HEALTH AND SAFETY. PROHIBITED CONSTRUCTION PROCEDURES, ACTIVITIES, OR OPERATIONS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

1. PUMPING OF SEDIMENT LADEN WATER FROM TRENCHES OR OTHER EXCAVATIONS INTO ANY SURFACE WATERS, ANY STREAM CORRIDORS, ANY WETLANDS, OR STORM DRAINS.
2. DISCHARGING POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE, AND/OR ANY OTHER HARMFUL WASTE, INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS, OR INTO NATURAL OR MAN-MADE CHANNELS LEADING THERETO.
3. DAMAGING VEGETATION OUTSIDE OF THE CONSTRUCTION AREA.

PERIMETER FILTER FABRIC FENCE, WATTLES

THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED.

1. THE HEIGHT OF A FILTER FENCE SHALL NOT EXCEED 36 INCHES (HIGHER FENCES MAY IMPOUND VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH OVERLAP, AND SECURELY SEALED.
3. POSTS SHALL BE SPACED A MAXIMUM OF 10 FEET APART AT THE BARRIER LOCATION AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 16 INCHES). WHEN EXTRA STRENGTH FABRIC IS USED WITHOUT THE WIRE SUPPORT FENCE, POST SPACING SHALL NOT EXCEED 6 FEET.
4. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ALONG THE LINE OF POSTS AND UP SLOPE FROM THE BARRIER.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UP SLOPE SIDE OF THE POSTS USING HEAVY DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES, OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
6. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.

7. WHEN EXTRA STRENGTH FILTER FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ITEM NO. 6 APPLYING.
8. THE TRENCH SHALL BE BACKFILLED AND SOIL COMPACTED OVER THE FILTER FABRIC.
9. FILTER FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UP SLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
10. WATTLES WILL BE PERMITTED IN LIEU OF PERIMETER FILTER FABRIC FENCE IF PREFERRED BY CONTRACTOR.

MAINTENANCE

SILT FENCES AND FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

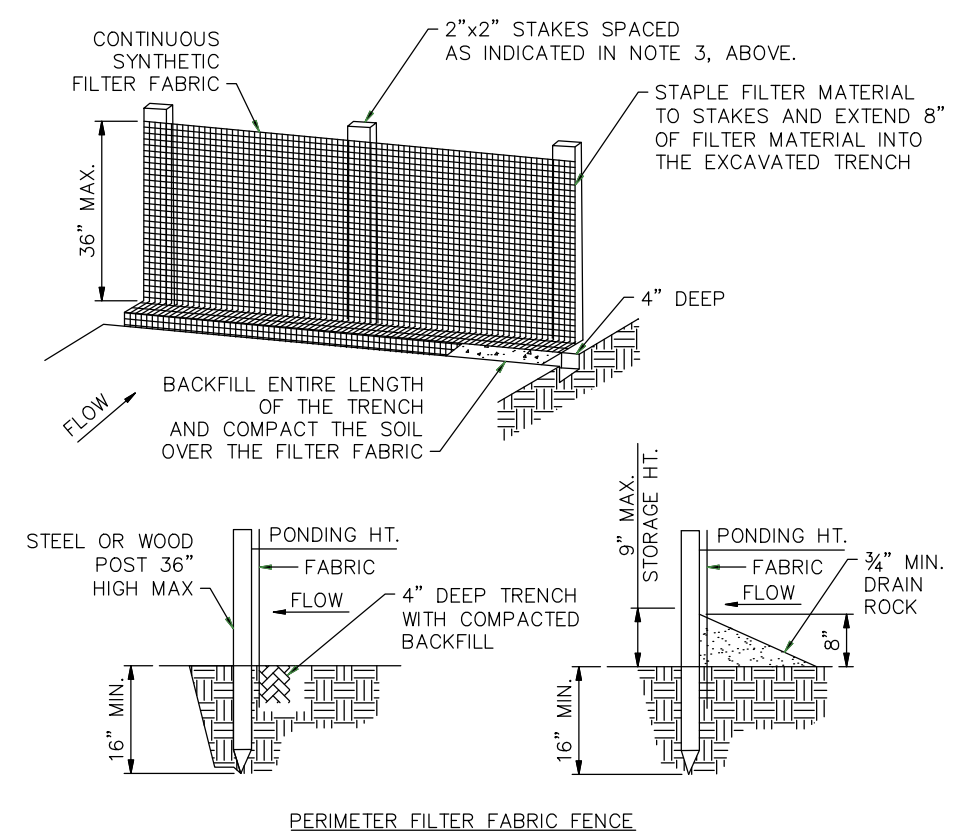
SHOULD THE FABRIC ON A SILT FENCE OR FILTER BARRIER DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER IS STILL NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED, AND SEEDED.

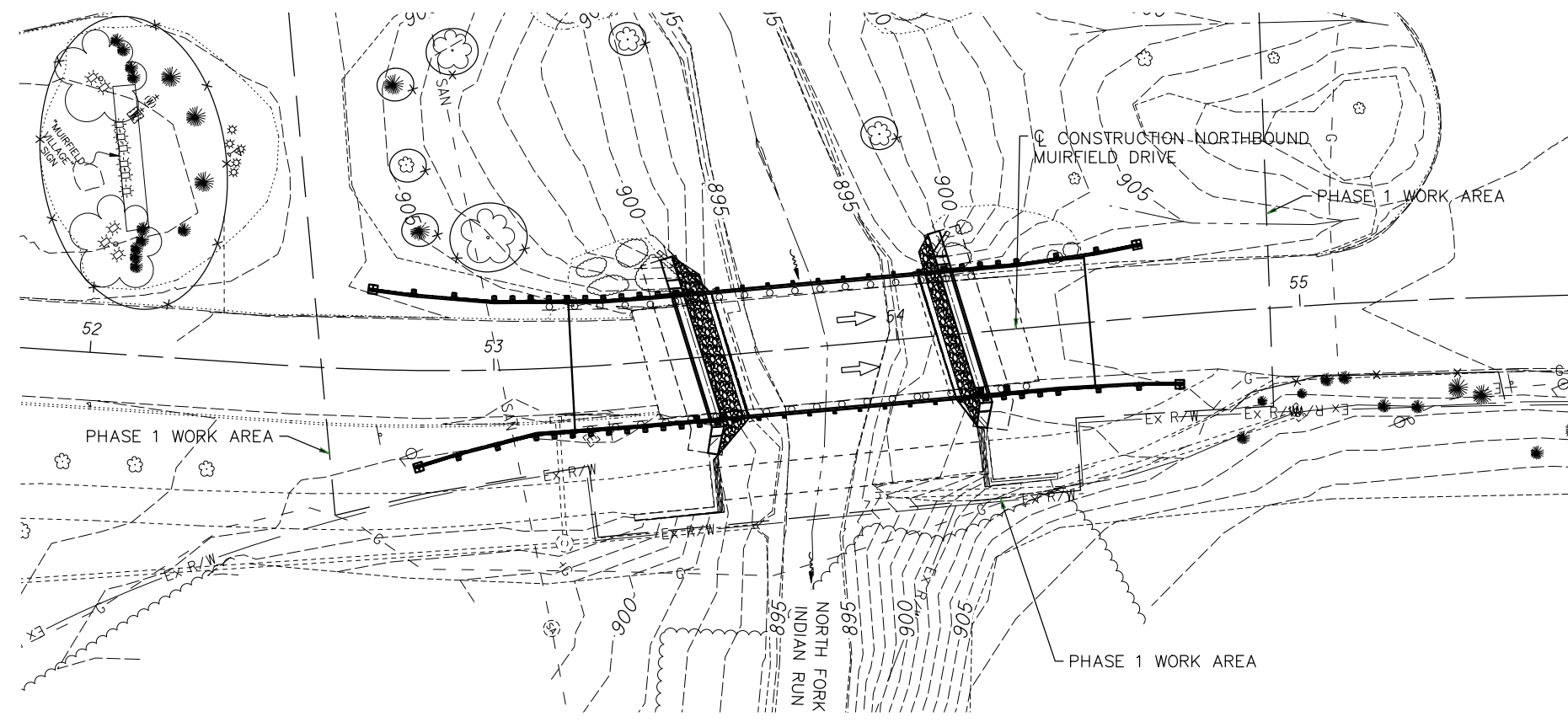
THIS WORK SHALL BE PAID AT THE UNIT PRICE BID PER LINEAL FOOT FOR:

ITEM 207 – PERIMETER FILTER FABRIC FENCE, WATTLES (FT)



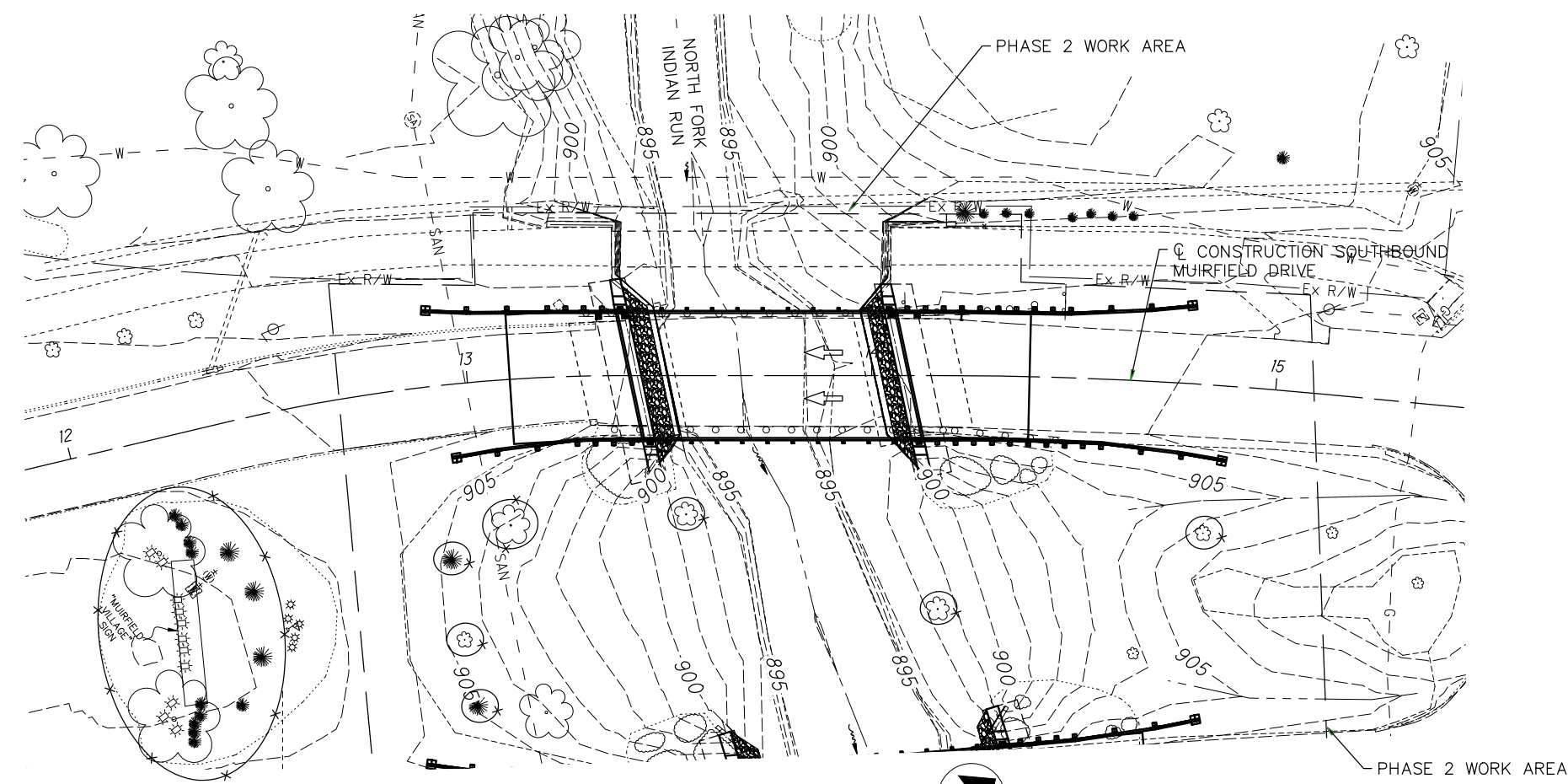
- NOTES:
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
 2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. (9" MAX RECOMMENDED STORAGE HT.)
 3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

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PLAN - PHASE 1 WORK AREA

PROJECT EARTH DISTURBED AREA: 0.33 ACRES



PLAN - PHASE 2 WORK AREA

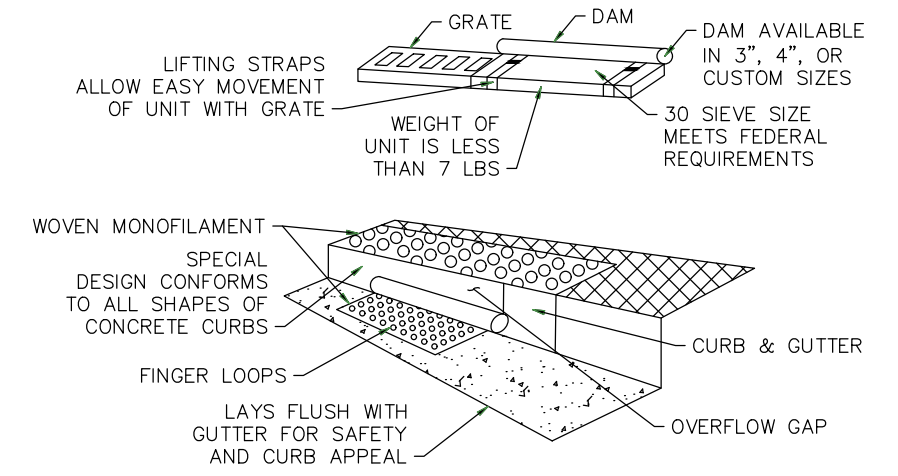
INLET PROTECTION

INSTALLATION AND MAINTENANCE OF INLET SEDIMENT FILTERS SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN BELOW.

MAINTENANCE

WITH A STIFF BRISTLE BROOM, SWEEP SILT AND OTHER DEBRIS OFF SURFACE AFTER EACH RAIN EVENT.

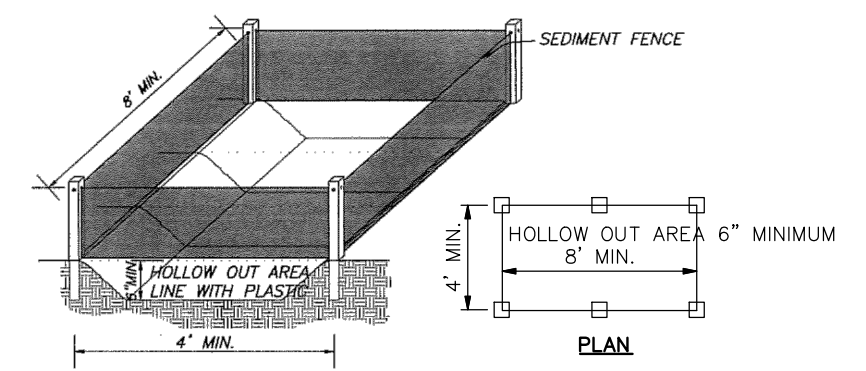
THIS WORK SHALL BE PAID AT THE UNIT PRICE BID PER EACH FOR ITEM 207 - INLET PROTECTION (EA)



ITEM SPECIAL - CONCRETE WASHOUT AREA

CONCRETE TRUCKS SHALL UTILIZE AREAS TO WASHOUT TRUCKS. ACCUMULATED CONCRETE SHALL BE REMOVED FROM SITE AND DISPOSED OF PROPERLY.

CONTRACTOR TO COORDINATE WITH CITY OF DUBLIN LOCATION OF CONCRETE WASHOUT AREA.



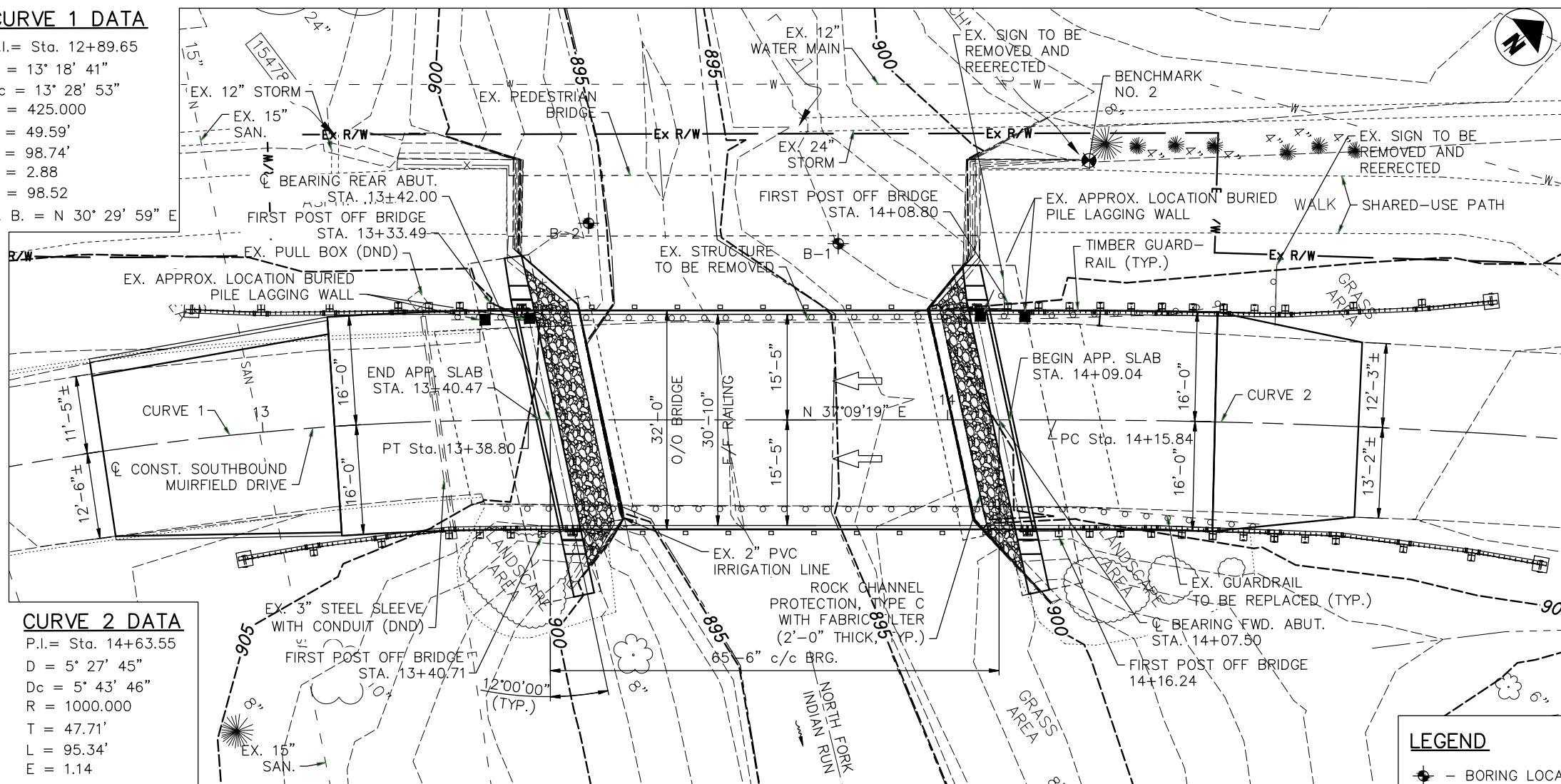
LEGEND

- PERIMETER FILTER FABRIC FENCE
- LIMITS OF DISTURBANCE
- CONCRETE WASHOUT AREA (CONTRACTOR TO COORDINATE LOCATION WITH CITY OF DUBLIN FOR APPROVAL)
- TREE PROTECTION FENCE
- WORK AREA

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CURVE 1 DATA

P.I. = Sta. 12+89.65
 D = 13° 18' 41"
 Dc = 13° 28' 53"
 R = 425.000
 T = 49.59'
 L = 98.74'
 E = 2.88
 C = 98.52
 C. B. = N 30° 29' 59" E



CURVE 2 DATA

P.I. = Sta. 14+63.55
 D = 5° 27' 45"
 Dc = 5° 43' 46"
 R = 1000.000
 T = 47.71'
 L = 95.34'
 E = 1.14
 C = 95.30
 C. B. = N 39° 53' 12" E

LEGEND

- ⊕ - BORING LOCATION
- ⊙ - BENCHMARK

BENCHMARK DATA

BENCHMARK NO. 2: CHISELED SQUARE LOCATED ON TOP OF THE NORTHWEST WINGWALL.
 STA. 14+20.46, OFFSET 37.87 LT., EL. 904.59
 NORTHING 775945.1460, EASTING 1787027.2790

CONTROL POINT NO. 2: SET CAPPED IRON REBAR.
 STA. 16+38.85, OFFSET 49.48 RT., EL. 908.11
 NORTHING 776052.0330, EASTING 1787238.5370
 (OFF OF SHEET)

SOIL BORINGS

GEOTECHNICAL ENGINEERING REPORT, NEW BIKE PATH BRIDGES BRAND ROAD AND MUIRFIELD DRIVE MULTI-USE PATH, JANUARY 17, 2012, TERRACON PROJECT NO. N4115119, AVAILABLE AT CITY OF DUBLIN.

TRAFFIC DATA

ADT (2009) = 10,000

HYDRAULIC DATA

DRAINAGE AREA = 8.38 SQ. MI.

Q₂₅ = 1240 CFS Q₁₀₀ = 2100 CFS
 V₂₅ = 4.28 FPS V₁₀₀ = 5.54 FPS
 HW₂₅ = 901.46 HW₁₀₀ = 902.94

EXISTING STRUCTURE

TYPE: SINGLE SPAN PRESTRESSED CONCRETE BOX BEAM ON REINFORCED CONCRETE SUBSTRUCTURE

SPAN: 52'-6" (±) C/C BEARINGS

ROADWAY: 28'-0" (±) FACE-TO-FACE OF RAILING

LOADING: HS20-44

SKEW: 12°00' (±) RIGHT FORWARD

WEARING SURFACE: 3" ASPHALT

APPROACH SLAB: AS-1-72 (20'-0" (±) LONG)

ALIGNMENT: TANGENT (ON REFERENCE CHORD)

DATE BUILT: 1974

STRUCTURE FILE NUMBER: 2568748
 LATITUDE: 40°07'42"N LONGITUDE: 83°08'57"W

PROPOSED WORK

TYPE: SINGLE SPAN PRESTRESSED BOX BEAMS TRANSVERSELY POST-TENSIONED ON REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENTS

SPAN: 65'-6" CENTER-TO-CENTER OF BEARINGS

ROADWAY: 30'-10" FACE-TO-FACE OF RAILING

LOADING: HL-93, FUTURE WEARING SURFACE = 0.06 KSF

SKEW: 12°00' RIGHT FORWARD

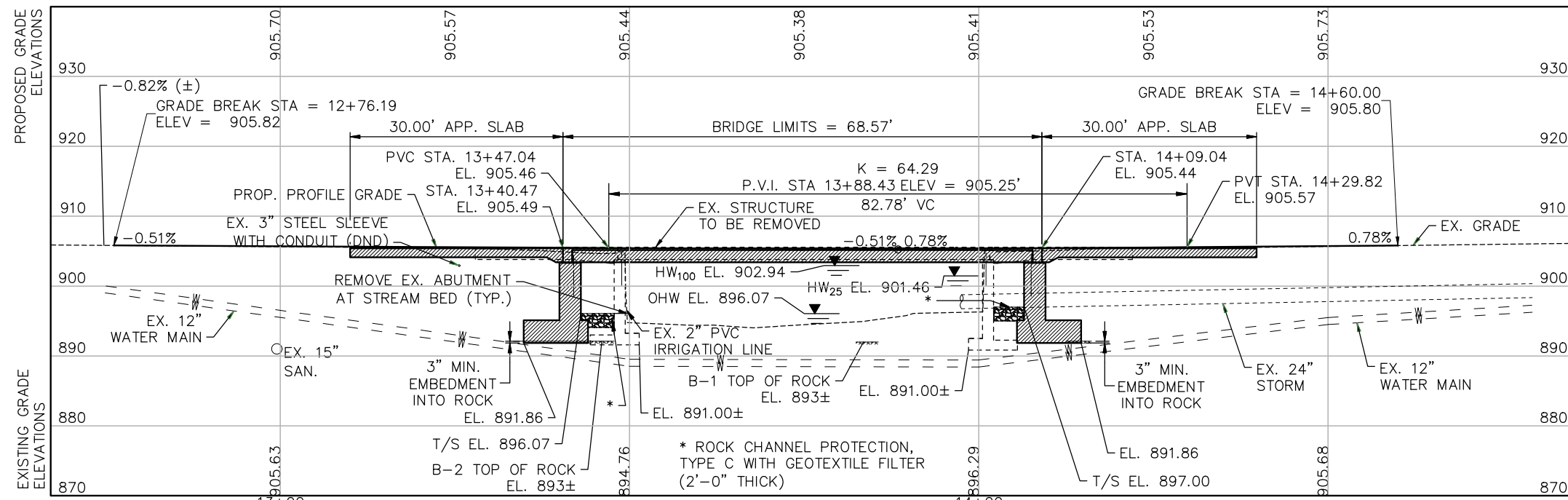
WEARING SURFACE: 3" ASPHALT CONCRETE

APPROACH SLAB: AS-1-15, 30'-0" LONG

ALIGNMENT: TANGENT

CROWN: 0.016 FT/FT

LATITUDE: 40°07'42.54"N LONGITUDE: 83°08'56.01"W



DESIGNAGENCY: PENNONI ASSOCIATES, INC. 5202 BETHEL REED PARK, SUITE 200 COLUMBUS, OHIO 43220

DATE: 07/13/20

REVIEWED: DWJ

STRUCTURE FILE NUMBER: 2568749

FRANKLIN COUNTY

STA. 13+40.47

STA. 14+09.04

SITE PLAN

BRIDGE NO. FRA-MURFD-0223L

MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN

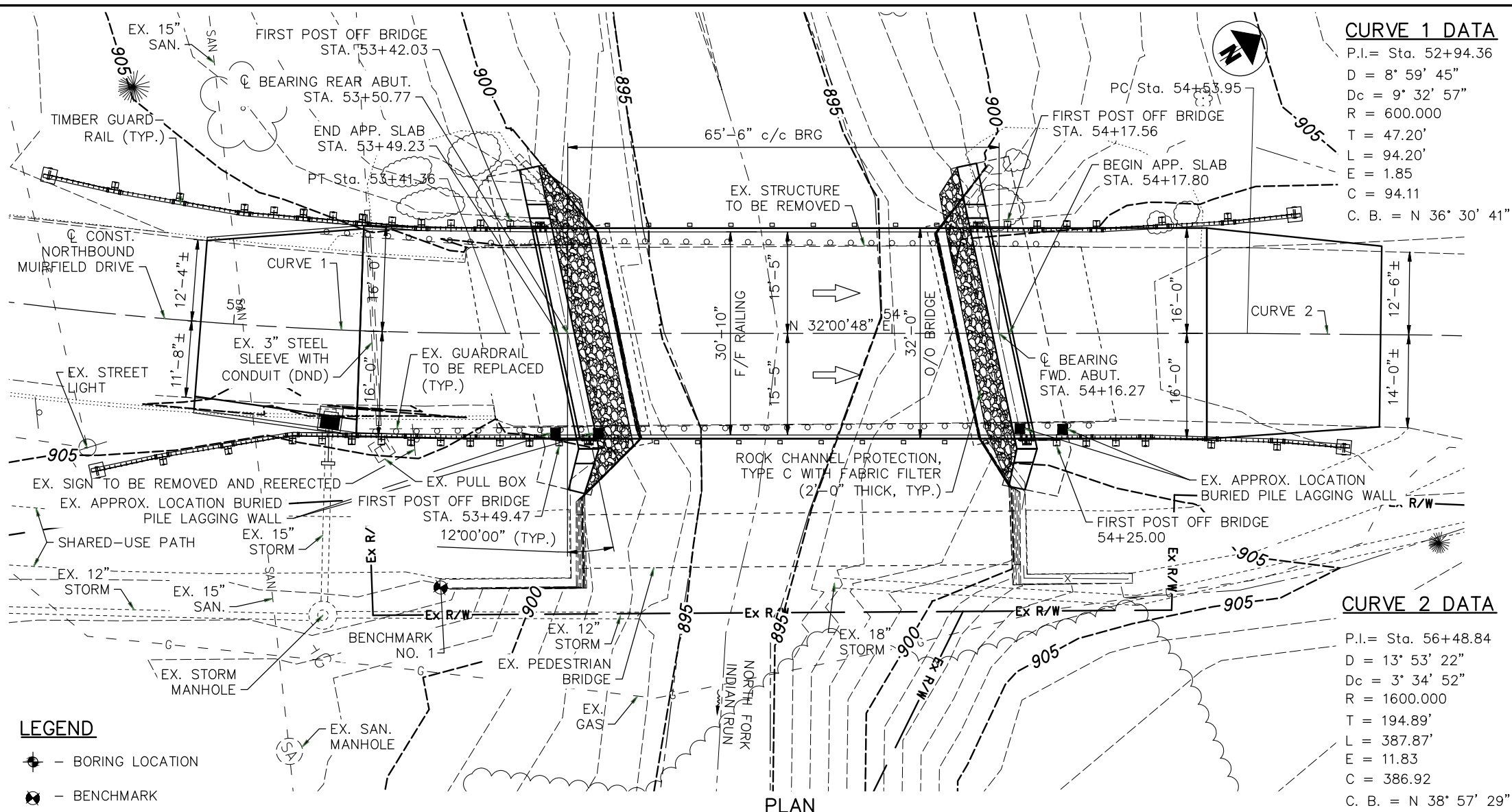
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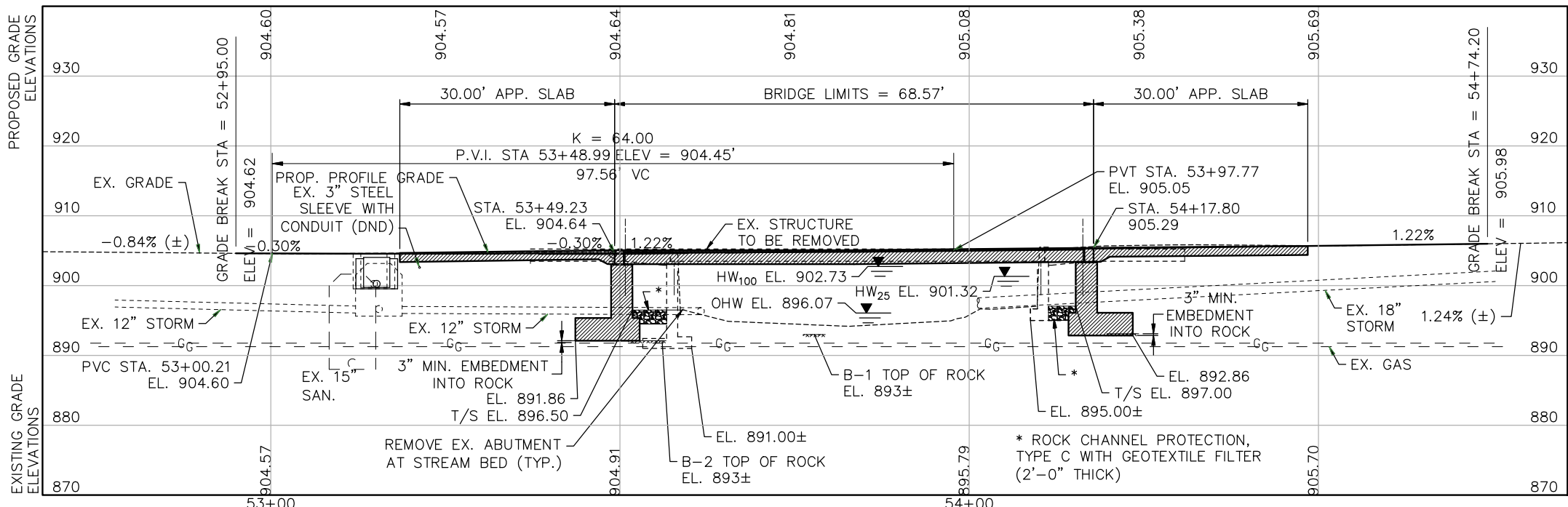
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- LEGEND**
- ⊕ - BORING LOCATION
 - ⊙ - BENCHMARK



PROFILE ALONG ϕ CONSTRUCTION NORTHBOUND MUIRFIELD DRIVE

BENCHMARK DATA	
BENCHMARK NO. 1: CHISELED SQUARE LOCATED ON TOP OF THE SOUTHEAST WINGWALL. STA. 53+32.06, OFFSET 38.67 RT., EL. 904.60 NORTHING 775778.2542, EASTING 1787140.4010	
CONTROL POINT NO. 1: SET CAPPED IRON REBAR. STA. 50+22.59, OFFSET 32.85 LT., EL. 910.05 NORTHING 775540.0920, EASTING 1786921.0500 (OFF OF SHEET)	
SOIL BORINGS	
GEOTECHNICAL ENGINEERING REPORT, NEW BIKE PATH BRIDGES BRAND ROAD AND MUIRFIELD DRIVE MULTI-USE PATH, JANUARY 17, 2012, TERRACON PROJECT NO. N4115119, AVAILABLE AT CITY OF DUBLIN.	
TRAFFIC DATA	
ADT (2009) = 10,000	
HYDRAULIC DATA	
DRAINAGE AREA = 8.38 SQ. MI.	
Q ₂₅ = 1240 CFS	Q ₁₀₀ = 2100 CFS
V ₂₅ = 4.02 FPS	V ₁₀₀ = 5.34 FPS
HW ₂₅ = 901.32	HW ₁₀₀ = 902.73
EXISTING STRUCTURE	
TYPE: SINGLE SPAN PRESTRESSED CONCRETE BOX BEAM ON REINFORCED CONCRETE SUBSTRUCTURE	
SPAN: 52'-6" (±) C/C BEARINGS	
ROADWAY: 28'-0" (±) FACE-TO-FACE OF RAILING	
LOADING: HS20-44	
SKEW: 12°00' (±) RIGHT FORWARD	
WEARING SURFACE: 3" ASPHALT	
APPROACH SLAB: AS-1-72 (20'-0" (±) LONG)	
ALIGNMENT: TANGENT (ON REFERENCE CHORD)	
DATE BUILT: 1974	
STRUCTURE FILE NUMBER: 2568756	
LATITUDE: 40°07'42"N LONGITUDE: 83°08'57"W	
PROPOSED WORK	
TYPE: SINGLE SPAN PRESTRESSED BOX BEAMS TRANSVERSELY POST-TENSIONED ON REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENTS	
SPAN: 65'-6" CENTER-TO-CENTER OF BEARINGS	
ROADWAY: 30'-10" FACE-TO-FACE OF RAILING	
LOADING: HL-93, FUTURE WEARING SURFACE = 0.06 KSF	
SKEW: 12°00' RIGHT FORWARD	
WEARING SURFACE: 3" ASPHALT CONCRETE	
APPROACH SLAB: AS-1-15, 30' LONG	
ALIGNMENT: TANGENT	
CROWN: 0.016 FT/FT	
LATITUDE: 40°07'42.54"N LONGITUDE: 83°08'56.01"W	
DESIGNAGENCY	DATE
PENNONI ASSOCIATES, INC. 5202 BETHEL REED PARK, SUITE 200 COLUMBUS, OHIO 43220	07/13/20
DESIGNED	REVIEWED
CTL	DWJ
CHECKED	STRUCTURE FILE NUMBER
ARA	2568757
FRANKLIN COUNTY	SITE PLAN
STA. 53+49.23	BRIDGE NO. FRA-MURFD-0223R
STA. 54+17.80	MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN
2 / 24	
23	
45	

STANDARD DRAWINGS AND SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD BRIDGE DRAWINGS:

DS-1-92	DATED (REVISED)	07/18/2003
PSBD-2-07	DATED (REVISED)	07/20/2018
SICD-1-96	DATED (REVISED)	07/18/2014

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION:

800	DATED (REVISED)	01/17/2020
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PROPOSED STRUCTURES

THE PROPOSED STRUCTURES SHALL BE A SINGLE SPAN PRESTRESSED BOX BEAMS TRANSVERSELY POST-TENSIONED ON REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENT.

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 7TH EDITION, AND THE ODOT BRIDGE DESIGN MANUAL, 2020.

DESIGN LOADING

HL-93
0.060 KSF (5" ASPHALT) FUTURE WEARING SURFACE

DESIGN DATA

CONCRETE CLASS QC2 - COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)

CONCRETE CLASS QC1 - COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)

REINFORCING STEEL - ASTM A615, A616, OR A617 GRADE 60, MIN. YIELD STRENGTH 60 KSI (ALL REINFORCING SHALL BE EPOXY COATED)

CONCRETE FOR PRESTRESSED BEAMS:
COMPRESSIVE STRENGTH (FINAL) = 7.0 KSI
COMPRESSIVE STRENGTH (RELEASE) = 5.0 KSI

PRESTRESSING STRAND:
ASTM A416
AREA = 0.167 SQ. IN. PER STRAND
ULTIMATE STRENGTH = 270 KSI
INITIAL STRESS = 202.5 KSI (LOW RELAXATION STRANDS)

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL
STEEL DRIP STRIP
DECK WATERPROOFING (TYPE 3)

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO DUBLIN CMS SECTIONS 102.05 AND 105.02.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE OWNER WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

RIGHT-OF-WAY

ALL WORK IS TO BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY.

SHOP DRAWINGS

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE CAST-IN-PLACE FOOTINGS, ABUTMENT WALLS AND WINGWALLS TO THE CITY OF DUBLIN ENGINEER'S OFFICE, WHICH WILL DETERMINE WHETHER THE PROPOSED REINFORCING AND DIMENSIONS CONFORM TO THE PLANS.

ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

THIS ITEM SHALL INCLUDE THE REMOVAL OF THE EXISTING STRUCTURE COMPONENTS AS DETAILED IN THE PLANS AND AS DIRECTED BY THE ENGINEER. THE REMOVALS SHALL INCLUDE BUT NOT NECESSARILY BE LIMITED TO THE FOLLOWING;

1. PRESTRESSED BOX BEAMS, ASPHALT WEARING SURFACE, BRIDGE GUARDRAIL.
2. ABUTMENT INCLUDING WINGWALLS TO LIMITS SHOWN IN THESE PLANS.
3. EXISTING APPROACH SLABS.

BASED ON RECORD PLAN INFORMATION FOR THE EXISTING BRIDGE, IT IS NOT ESTIMATED THAT REMOVAL LIMITS WILL EXTEND BELOW THE PROPOSED BOTTOM OF FOOTING ELEVATION. HOWEVER, IF STRUCTURE REMOVAL RESULTS IN VOIDS BELOW THE BOTTOM OF FOOTING ELEVATION, THE PLACEMENT AND COMPACTION OF SUITABLE EMBANKMENT MATERIAL SHALL BE INCLUDED WITHIN THE LUMP SUM COST FOR ITEM 503 - UNCLASSIFIED EXCAVATION, FOR PAYMENT.

THE METHOD AND SEQUENCE OF REMOVALS SHALL BE PROPOSED BY THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT HIS DEMOLITION PLANS AND PREVENTION PLAN TO LIMIT DEBRIS FROM FALLING INTO THE STREAM DURING THE DEMOLITION OPERATIONS. MATERIAL FALLING INTO THE STREAM SHALL BE IMMEDIATELY REMOVED WITHIN A 24 HOUR PERIOD.

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC, AS PER PLAN

MATERIAL SHALL CONFORM TO CMSC 703.18B EXCEPT AS NOTED BELOW AND SHALL CONSIST OF BROKEN LIMESTONE. THE USE OF RECYCLED PORTLAND CEMENT CONCRETE (RPCC) SHALL NOT BE PERMITTED.

GEOTECHNICAL REPORT

GEOTECHNICAL REPORT IS AVAILABLE FROM THE CITY OF DUBLIN, ENGINEERING, 6555 SHIER-RINGS ROAD, DUBLIN, OH 43016, ATTENTION KEN RICHARDSON, PE, PS, OFFICE PHONE (614) 410-4631 .

ITEM SPECIAL - STRUCTURES MISC.: TRANSVERSE POST-TENSIONING OF PRESTRESSED CONCRETE BOX BEAMS

BEAMS WILL BE TRANSVERSELY POST-TENSIONED IN THE FIELD USING GALVANIZED A722, TYPE II, 1 3/4" DIA. HIGH STRENGTH STEEL THREADED BARS OF MINIMUM YIELD STRENGTH OF 150 KSI AND WITH AN EFFECTIVE AREA OF 2.60 SQ. IN. AND AN FINAL PRESTRESSING FORCE OF 245 KIPS. GALVANIZING OF THE BARS WILL BE AS PER 711.02 BUT LIMITED TO ASTM A123. THE METHODS USED TO DETERMINE FORCE IN THE BAR SHALL MEET THE APPROVAL OF THE ENGINEER AND SHALL INVOLVE THE USE OF A CERTIFIED, CALIBRATED JACK OR TORQUE WRENCH AND FIELD MEASURED ELONGATIONS OF THE POST-TENSIONING BARS.

BEARING PLATES WILL BE ASTM A36 STEEL. OTHER RELATED HARDWARE, INCLUDING WASHERS, NUTS AND COUPLERS, WILL BE AS PER THE POST-TENSIONING MANUFACTURERS RECOMMENDATION. GALVANIZING OF PLATES AND OTHER RELATED HARDWARE WILL BE IN ACCORDANCE WITH 711.02.

WATERTIGHT SEALS (NEOPRENE WASHERS) WILL BE PLACED AT JOINTS IN BETWEEN BEAMS AT DUCT LOCATIONS TO ASSURE THAT JOINT GROUT DOES NOT LEAK INTO DUCTS. SEALS SHALL BE SUFFICIENTLY THICKER THAN THE REQUIRED 1" MINIMUM JOINT AND SHALL BE COMPRESSED DURING PLACEMENT OF AN ADJACENT BOX BEAM. GLUE A 1" X 2" X 2" (ACTUAL DIMENSIONS, NOT NOMINAL) PIECE OF PRESSURE TREATED PLYWOOD AT EACH POST-TENSIONING BAR LOCATION TO INSURE A 1 INCH GAP IS OBTAINED. OFFSET APPROXIMATELY 2 FEET FROM THE POST-TENSIONING BAR HOLE AND CENTERED ON THE HOLE DEPTH. PLYWOOD SPACERS ARE REQUIRED ON ONLY ONE BEAM EDGE AT EACH ABUTTING EDGE (SHEAR KEY LOCATION.) POST-TENSIONING BARS WILL BE PLACED IN THE DUCTS PRIOR TO THE GROUTING OF THE JOINTS. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THAT THE POST-TENSIONING BARS ARE FREE TO MOVE WITHIN THE DUCTS PRIOR TO STRESSING OPERATIONS. AN INITIAL STRESS OF 10% OF THE FINAL STRESSING FORCE (24.5 KIPS) SHALL BE IMPARTED INTO THE BAR PRIOR TO PLACING THE SHEAR KEY GROUT. JOINT GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI PRIOR TO THE TENSIONING OF THE BARS.

POST-TENSIONING SHALL BE ACCOMPLISHED IN THREE OPERATIONS. THE FIRST IS PRIOR TO GROUTING OF THE LONGITUDINAL JOINTS. TEN PERCENT (10%) OF THE BAR FORCE SHALL BE INDUCED. THE LONGITUDINAL JOINTS SHALL THEN BE GROUTED ONCE THE GROUT HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 4,000 P.S.I., 40% OF THE REMAINING FORCE CAN BE INDUCED. ONCE ALL THE BARS HAVE BEEN STRESSED THE REMAINING POST-TENSIONING FORCE OF 122.5 KIPS (245 KIPS TOTAL) CAN BE INDUCED INTO THE STRUCTURE. THE DUCTS CAN THEN BE GROUTED. POST-TENSIONING HARDWARE MUST BE DESIGNED FOR REPEATED STRESSING OPERATIONS.

POST-TENSIONING DETAILS SHOWN ON THESE PLANS ARE GENERIC. ANY POST-TENSIONING SYSTEM MEETING THE REQUIREMENTS OF THE PLANS INCLUDING THAT PROVIDED BY DYWDAG SYSTEMS INTERNATIONAL, 320 MARMON DRIVE, BOLINGBROOK, IL 60440 OR WILLIAMS FORM ENGINEERING CORP., 280 ANN STREET, GRAND RAPIDS, MI 49504 OR ANOTHER EQUAL SYSTEM MAY BE SUBMITTED FOR APPROVAL.

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING THE COMMUNICATION BETWEEN ALL PARTIES INCLUDING THE BEAM FABRICATOR AND POST-TENSIONING SERVICE PROVIDER.
2. DETAILED POST-TENSIONING SHOP DRAWINGS, PROCEDURES AND CALCULATIONS, PREPARED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF OHIO, ARE TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL AT LEAST 30-CALENDAR DAYS PRIOR TO THE CASTING OF THE PRESTRESSED BOX BEAMS AND WHICH INCLUDE, BUT ARE NOT LIMITED TO:

A COMPLETE DESCRIPTION OF THE DETAILS COVERING EACH OF THE PRECAST BEAMS AND SUBSEQUENT POST-TENSIONING SYSTEMS TO BE USED; DESIGNATION OF THE SPECIFIC POST-TENSIONING STEEL, ANCHORAGE DEVICES, COUPLERS, DUCT MATERIAL AND ACCESSORY ITEMS; COMPLETE GEOMETRIC LAYOUTS FOR EACH PRECAST BEAM AND SUBSEQUENT POST-TENSIONING BAR CONFIGURATION; PROPERTIES OF EACH OF THE COMPONENTS OF THE POST-TENSIONING; EQUIPMENT TO BE USED IN THE POST-TENSIONING OPERATIONS; STEP BY STEP ERECTION PROCEDURE OF PRECAST PIECES AND SEQUENCE OF OPERATIONS FOR POST-TENSIONING AND SECURING BARS; PARAMETERS TO BE USED TO CALCULATE THE TYPICAL BAR FORCE; DETAILS OF SPECIAL REINFORCING (IF REQUIRED) AT "LOCAL ZONES" OR ANCHORAGES; A TABLE DETAILING THE POST-TENSIONING TORQUING SEQUENCE, TORQUE FORCES AND ELONGATION OF EACH BAR AT EACH STAGE OF CONSTRUCTION FOR ALL POST-TENSIONING (THE SEQUENCE OF TORQUING SHALL BE AS SYMMETRIC AS POSSIBLE TO MINIMIZE ECCENTRIC STRESSING, BOTH VERTICALLY AND HORIZONTALLY, WITHIN EACH MEMBER AND THE OVERALL SUPERSTRUCTURE); COMPLETE DETAILS OF THE ANCHORAGE SYSTEM FOR POST-TENSIONING INCLUDING CERTIFIED COPIES OF THE REPORTS COVERING TESTS PERFORMED ON POST-TENSIONING ANCHORAGE DEVICES AND DETAILS FOR ANY REINFORCING STEEL NEEDED DUE TO STRESSES IMPOSED IN THE CONCRETE BY ANCHORAGE PLATES; FOR THE OPERATION OF GROUTING POST-TENSIONING BARS, THE MATERIALS AND PROPORTIONS FOR GROUT, TYPE OF GROUT, DETAILS OF EQUIPMENT FOR MIXING AND PLACING GROUT, AND METHODS OF MIXING AND PLACING GROUT; CALCULATIONS TO SUBSTANTIATE THE POST-TENSIONING SYSTEM AND PROCEDURES TO BE USED, INCLUDING REQUIRED TORQUE FORCES, ELONGATION OF BARS DURING TENSIONING, SEATING LOSSES, ANY TEMPORARY OVERSTRESSES, STRESSES IN ANCHORAGE SYSTEMS INCLUDING DISTRIBUTION PLATES AND REINFORCING STEEL NEEDED IN THE CONCRETE TO RESIST STRESSES IMPOSED BY POST-TENSIONING ANCHORAGES (CALCULATIONS SHALL SHOW A TYPICAL BAR FORCE AFTER ALL LOSSES).

3. MEASURE AND RECORD THE ACTUAL TOTAL ELONGATION OF EACH BAR. COMPARE THE ACTUAL ELONGATION WITH THE PREDICTED ELONGATION SHOWN IN THE APPROVED SHOP DRAWINGS. A SIGNIFICANT DIFFERENCE IN ACTUAL ELONGATION VERSUS PREDICTED ELONGATION COULD INDICATE IMPROPER JACKING OR TORQUING TECHNIQUES, IMPROPER MATERIALS, FAULTY TORQUE WRENCH OR JACK , OR IMPROPERLY CALIBRATED TORQUE WRENCH OR JACK. IF THE DIFFERENCE IS MORE THAN 15% THEN THE JACK OR TORQUE WRENCH WILL BE RECALIBRATED AND THE JACKING OR TORQUING TECHNIQUES EVALUATED. IF, AFTER RECALIBRATION OF THE JACK OR TORQUE WRENCH AND ASSURANCE THAT THE JACKING OR TORQUING TECHNIQUES ARE SATISFACTORY, THE ELONGATION DIFFERENCE IS MORE THAN 10% FROM THE PREDICTED ELONGATION, ALL WORK SHALL CEASE AND THE ENGINEER SHALL BE NOTIFIED. NO WORK SHALL BE RESUMED UNTIL THE ENGINEER HAS REVIEWED THE SITUATION AND APPROVED THE CONTRACTOR'S REMEDY PLAN.

4. GROUT TUBES SHALL PENETRATE (DAYLIGHT OR EXIT) THROUGH ONLY THE VERTICAL SIDES OF THE PRECAST BOX BEAMS.

5. ALL ACCESS POCKETS, TOP AND SIDES OF BOX BEAMS, SHALL BE GROUTED WITH HIGH EARLY STRENGTH GROUT ACCORDING TO ALTERNATE 2, AS DESCRIBED ON SHEET 1 OF STD. DWG. PSBD-2-07.

ALL LABOR, MATERIALS, GROUTING OF THE DUCTS AND ACCESS POCKETS, AS WELL AS OTHER INCIDENTAL COSTS ASSOCIATED WITH THE TRANSVERSE POST-TENSIONING OF THE BEAMS SHALL BE INCLUDED WITH THIS ITEM.

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DESIGN AGENCY PENNONI 5202 BETHEL REED PARK, SUITE 200 COLUMBUS, OHIO 43220	DATE 07/13/20	DESIGNED CJK	DRAWN CJK	REVIEWED DWJ	STRUCTURE FILE NUMBER 2568749L - 2568757R
	GENERAL NOTES BRIDGE NO. FRA-MURFD-0223LR MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN	CHECKED CTL	REVISED		
					3 / 24
					24
					45

RAILING NOTES

TRAFFIC RAIL APPROACH RAIL RAIL TERMINATION

THIS WORK CONSISTS OF CONSTRUCTING STEEL-BACKED TIMBER GUARDRAIL AND RELATED GUARDRAIL POSTS, TERMINAL SECTIONS, STRUCTURE CONNECTIONS, SPECIAL CONNECTIONS TO OTHER GUARDRAIL TYPE, AND RELATED APPURTENANCES. THE WORK SHALL INCLUDE THE FURNISHING, ASSEMBLING, AND ERECTING OF ALL COMPONENT PARTS, MATERIALS, AND INCIDENTALS, COMPLETE AND IN-PLACE, IN ACCORDANCE WITH THE DETAILS AND AT THE LOCATIONS SHOWN IN THE PLANS. OR AS DIRECTED BY THE CITY ENGINEER, AND ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, WHERE APPLICABLE.

MATERIALS

THE CONTRACTOR SHALL FURNISH MATERIALS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

TIMBER RAIL, POSTS, AND BLOCK OUTS

FURNISH TIMBER CONFORMING TO AASHTO M 168. FABRICATE THE TIMBER RAIL, BLOCK OUTS, AND POSTS FROM DRY, WELL SEASONED, AND DRESSED ROUGH SAWN DOUGLAS FIR, SOUTHERN PINE, OR OTHER SPECIES HAVING A STRESS GRADE OF AT LEAST 1500 POUNDS PER SQUARE INCH. TREAT THE TIMBER RAIL, BLOCK OUT ELEMENTS, AND POSTS ACCORDING TO AASHTO M 133. POSTS SHALL HAVE A 10-INCH BY 12-INCH CROSS SECTIONAL DIMENSION AND SHALL BE 7 FEET IN LENGTH UNLESS OTHERWISE SPECIFIED IN THE PLANS. NO TIMBER RAIL, POST OR BLOCK OUT SHALL BE USED THAT EXHIBITS A THROUGH CHECK, SHAKE, OR END SPLIT IN THE SAME PLANE AS, OR PARALLEL TO THE BOLT HOLE AND EXTENDING FROM THE TOP OF THE RAIL, POST OR BLOCK OUT TO WITHIN 3 INCHES OF THE BOLT HOLE.

STEEL BACKING AND HARDWARE

FABRICATE THE STEEL BACKING ELEMENTS FROM 3/8-INCH STRUCTURAL STEEL THAT CONFORMS TO THE HIGH-STRENGTH, LOW-ALLOY REQUIREMENTS OF ASTM A242. ALL FASTENER HARDWARE SHALL ALSO CONFORM TO THE STRENGTH REQUIREMENTS OF ASTM A242. THE STEEL BACKING ELEMENTS AND FASTENER HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH C.O.C. CMS 711.02.

CONCRETE ANCHORS

THE 1" DIAMETER PROPOSED WINGWALL AND BOX BEAM THREADED RODS SHALL BE ASTM A193, GRADE B7, WITH ASTM A563 NUTS AND ASTM F436 WASHERS. MECHANICALLY GALVANIZE ALL ANCHOR HARDWARE ACCORDING TO ASTM B695, CLASS 65.

USE AN ANCHOR ADHESIVE EVALUATED ACCORDING TO ICCES REPORT AC308, "ACCEPTANCE CRITERIA FOR POST-INSTALLED ADHESIVE ANCHORS IN CONCRETE ELEMENTS", FOR CRACKED AND UNCRACKED CONCRETE APPLICATIONS. PUBLISHED ICCES REPORTS FOR ACCEPTABLE PRODUCTS ARE AVAILABLE AT:
WWW.ICC-ES.ORG/EVALUATION_REPORTS/INDEX.SHTML.

SELECT FROM ONE OF THE FOLLOWING APPROVED PRODUCTS:

POWERS PE1000+ EPOXY ADHESIVE ANCHOR SYSTEM (ICCES REPORT ESR-2583)

CHEMOFAST C-RE 385 EPOXY ADHESIVE ANCHOR SYSTEM (ICCES REPORT ESR-2538)

SIMPSON STRONG-TIE SET-XP EPOXY ADHESIVE ANCHORS (ICCES REPORT ESR-2508)

WURTH WIT-PE500 EPOXY ADHESIVE ANCHORS (ICCES REPORT ESR-3051)

HILTI-HY 200-R ADHESIVE ANCHOR SYSTEM
ICCES REPORT ESR-3187

INSTALL ADHESIVE ANCHORS ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PUBLISHED IN SECTION 4.3 OF THE ICCES REPORTS LISTED ABOVE. THE MINIMUM EMBEDMENT DEPTH (H_{ef}) FOR ANCHORS SHALL BE 5".

THE CONTRACTOR MAY SUBSTITUTE MECHANICAL ANCHORS IN LIEU OF INTERNALLY THREADED ADHESIVE ANCHORS FOR THE HORIZONTAL ANCHORS.

THE FACTORED LOADING ON THE TWO ANCHOR HORIZONTAL CONNECTION, CONSISTS OF 7.1 KIPS OF TENSION AND 1.4 KIPS OF SHEAR. THE MECHANICAL ANCHORS SHALL BE EVALUATED ACCORDING TO ICCES REPORT AC193, "ACCEPTANCE CRITERIA FOR MECHANICAL ANCHORS IN CONCRETE ELEMENTS", FOR CRACKED AND UNCRACKED APPLICATIONS. PUBLISHED ICCES REPORTS FOR ACCEPTABLE PRODUCTS ARE AVAILABLE AT:

WWW.ICC-ES.ORG/EVALUATION_REPORTS/INDEX.SHTML

THE CONTRACTOR SHALL SUPPLY DOCUMENTATION SEALED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER ENSURING THAT THE SELECTED MECHANICAL ANCHORAGE PROVIDES SUFFICIENT CAPACITY FOR THIS APPLICATION IN ACCORDANCE WITH AC193. INSTALL ANCHORS ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS PUBLISHED IN THE ICCES REPORT.

PAINTING

TIMBER RAIL SHALL BE "CURED" FROM THE PRESSURE TREATMENT PROCESS AT LEAST 4 MONTHS PRIOR TO PAINTING. ALL TIMBER, STEEL RAIL SURFACES AND STEEL HARDWARE SHALL BE PAINTED WOLF GREY AS SUPPLIED BY SHERWIN-WILLIAMS PAINT - KING AVENUE COMMERCIAL STORE 614-299-2116. FIRST, USE PRIMER PAINT COAT PRO-CRYL BY SHERWIN-WILLIAMS ON ALL GALVANIZED SURFACES. PAINT ALL METAL SURFACES WITH THE PRO-CRYL PRIMER IN A UNIFORM, CONSISTENT, AND EVEN APPLICATION. AFTER PRIMER, APPLY TWO COATS OF SHER-CRYL PAINT BY SHERWIN-WILLIAMS ON THE STEEL RAIL AND STEEL HARDWARE. EACH COAT TO BE APPLIED IN A UNIFORM, CONSISTENT, AND EVEN APPLICATION ON THE SURFACE. SHER-CRYL PAINT SHALL BE APPLIED IN TWO COATS, EACH WITH A MINIMUM 2.0 MILL DRY FILM THICKNESS FOR EACH COAT.

CONSTRUCTION REQUIREMENTS

THE FOLLOWING REQUIREMENTS SHALL SUPPLEMENT, AND IN CASES OF PERCEIVE CONFLICT, REPLACE THE REQUIREMENTS OF C.O.C. CMS 606.

POSTS

ALL POSTS SHALL BE DRIVEN TO GRADE. AUGERING AND/OR EXCAVATION OF POST HOLE TO BOTTOM OF POST ELEVATION SHALL NOT BE PERFORMED, AUGER TO WITHIN ONE FOOT OF BOTTOM OF POST.

TREAT FIELD CUTS FOR WOOD POSTS WITH TWO COATS OF PRESERVATIVE APPLIED WITH A BRUSH OR SPRAYER. DO NOT PLACE FIELD CUTS IN CONTACT WITH THE GROUND.

PUNCH OR DRILL PILOT HOLES NO MORE THAN 1/2 INCHES LARGER THAN THE POST DIMENSIONS. DRIVE THE POSTS INTO THE PILOT HOLES AND SET THE POSTS PLUMB. BACKFILL AND COMPACT AROUND THE POSTS WITH ACCEPTABLE MATERIAL.

WHERE IT IS NOT POSSIBLE TO MAINTAIN A 24-INCH MINIMUM DISTANCE BETWEEN THE BACK OF THE RAIL POST AND THE TOP OF A 1V:2H OR STEEPER SLOPE, INCREASE THE STANDARD POST LENGTH BY 12 INCHES AS DIRECTED BY THE ENGINEER.

WHERE AN IMPENETRABLE OBJECT IS ENCOUNTERED, USE A SHORT POST WITH A CONCRETE ANCHOR, DECREASE THE POST SPACING, OR NEST TWO RAIL ELEMENTS AS APPROVED BY THE ENGINEER. DO NOT CHANGE THE POST LENGTHS AND SPACINGS IN TERMINAL SECTIONS.

RAIL ELEMENTS

DO NOT MODIFY SPECIFIED HOLE DIAMETERS OR SLOT DIMENSIONS.

ERECT RAIL ELEMENTS IN A SMOOTH CONTINUOUS LINE WITH THE LAPS IN THE DIRECTION OF TRAFFIC FLOW. USE BOLTS THAT EXTEND AT LEAST 1/4" INCH BUT NOT MORE THAN 1 INCH BEYOND THE NUTS.

SECTION LENGTHS OF TS 4" X 4" RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF THREE POSTS.

TIGHTEN ALL BOLTS.

PAINT ALL SCRAPES ON GALVANIZED SURFACES THAT ARE THROUGH THE BASE METAL WITH 2 COATS OF ZINC-OXIDE PAINT.

EQUALLY SPACE BOLTS ALONG THE FRONT FACE OF THE TIMBER RAIL TO MATCH THE HOLES IN THE STEEL BACKING. ALIGN TIMBER RAIL ALONG THE TOP AND FRONT OF THE TIMBER RAIL.

FIELD CUT TIMBER RAILS TO PRODUCE A CLOSE FIT AT JOINTS. TREAT FIELD CUTS WITH 2 COATS OF CHROMATED COPPER ARSENATE.

TERMINAL SECTIONS

CONSTRUCT TERMINAL SECTIONS AND STRUCTURE CONNECTIONS IN ACCORDANCE WITH THE DETAILS AND AT THE LOCATIONS SHOWN IN THE PLANS. TERMINAL SECTIONS AND STRUCTURE CONNECTIONS CONSIST OF POSTS, RAILING, HARDWARE, TRANSITION CURBING, AND ANCHORAGE ASSEMBLIES NECESSARY TO CONSTRUCT THE TYPE OF TERMINAL SECTION OR STRUCTURE CONNECTION SPECIFIED.

WHERE CONCRETE ANCHORS ARE INSTALLED, CONSTRUCT EITHER CAST-IN-PLACE OR PRECAST UNITS. DO NOT CONNECT THE GUARDRAIL TO CAST-IN-PLACE ANCHORS UNTIL THE CONCRETE HAS CURED 7 DAYS. INSTALL END ANCHOR CABLES TIGHTLY WITHOUT SLACK.

CONCRETE FOR THE RAILING TERMINATION ANCHOR SHALL CONFORM TO C.O.C. CMS 499 AND 511 AND SHALL BE COC 6 (COMPRESSIVE STRENGTH = 4,000 PSI).

GUARDRAIL REFLECTOR TABS

INSTALL IN ACCORDANCE WITH THE REQUIREMENTS OF C.O.C. CMS 626 PERTINENT TO TYPE A, ONE-WAY GUARDRAIL BLOCKOUT REFLECTORS.

FABRICATION

STRUCTURAL STEEL SHALL BE SHOP FABRICATED. SUBMIT SHOP DRAWINGS TO THE CITY FOR APPROVAL PRIOR TO FABRICATION. PROVIDE DRAWINGS SHOWING RAIL SECTION LENGTHS, SPLICE LOCATIONS, RAIL POST SPACING, AND LENGTHS. WELDING SHALL CONFORM TO ANSI/AASHTO/AWS D1.5 AND SHALL BE COMPLETED BY A CERTIFIED WELDER. ALL STEEL SHALL BE FABRICATED BEFORE BEING GALVANIZED.

MEASUREMENT

STEEL-BACKED TIMBER RAIL OF THE TYPE AND POST LENGTH SPECIFIED IN THE PLANS WILL BE MEASURED BY THE NUMBER OF FEET FROM CENTER-TO-CENTER OF END POSTS FURNISHED AND ERECTED COMPLETE, EXCLUDING TERMINAL SECTIONS.

TERMINAL SECTIONS AND STRUCTURE CONNECTIONS OF THE TYPE(S) SPECIFIED SHALL BE MEASURED BY THE NUMBER OF EACH FURNISHED AND ERECTED COMPLETE.

PAYMENTS

ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING EACH RAIL TYPE, SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE OF THE RESPECTIVE RAIL ITEMS. THIS INCLUDES BUT IS NOT LIMITED TO ALL STEEL TUBES, TIMBER RAILS, STEEL OR TIMBER POSTS, POST HOLES, BOLTS, WASHERS, BLOCKING, CONCRETE, BASE PLATES, THREADED ANCHOR RODS, ANCHOR ROD HOLES, ANCHOR ADHESIVE, STEEL PLATES, PAINT, AND ANY NECESSARY APPROVED CHANGES TO THE STANDARD POST SPACINGS.

ACCEPTED QUANTITIES WILL BE PAID AT THE CONTRACT PRICE PER UNIT AS FOLLOWS:

LINEAR FEET OF TRAFFIC RAIL
(SEE SHEET 26 OF 45 FOR QUANTITIES.)
LINEAR FEET OF APPROACH RAIL
EACH RAIL TERMINATION
(SEE SHEET 16 OF 45 FOR QUANTITIES.)

PAYMENT WILL BE FULL COMPENSATION FOR THE WORK PRESCRIBED IN THIS SECTION.

ESTIMATED QUANTITIES

CALC. BY: AJK DATE: 4/27/2020
 CHKD. BY: CTL DATE: 4/27/2020

ITEM	DESCRIPTION	TOTAL	UNIT	SOUTHBOUND BRIDGE				NORTHBOUND BRIDGE				REF. SHEET NUMBER
				REAR ABUTMENT	FORWARD ABUTMENT	SUPER-STRUCTURE	GENERAL	REAR ABUTMENT	FORWARD ABUTMENT	SUPER-STRUCTURE	GENERAL	
	STRUCTURE OVER 20 FOOT SPAN (FRA-MURFD-0223LR)*											
202	PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN	LS										3
202	APPROACH SLAB REMOVED	249	SY				125				125	
202	WEARING COURSE REMOVED	584	SY			168	125			168	125	
407	NTSS-1HM TRACKLESS TACK COAT FOR INTERMEDIATE COURSE (0.055 GAL/SY)	52	GAL			14	12			14	12	
441	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG64-22, MT	68	TON			18	16			18	16	
441	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448), PG64-22, MT	112	TON			34	22			34	22	
503	COFFERDAMS AND EXCAVATION BRACING	LS										
503	UNCLASSIFIED EXCAVATION, INCLUDING ROCK	LS										
509	EPOXY COATED REINFORCING STEEL	34420	LB	15214		1726		15754		1726		
511	CLASS QC2 CONCRETE, SUPERSTRUCTURE	16	CY			8				8		
511	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING	378	CY	98	95			93	92			
512	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	240	SY	47	41	35		41	41	35		
512	TYPE 2 WATERPROOFING	76	SY	19	19			19	19			
512	TYPE 3 WATERPROOFING	488	SY			244				244		
515	PRESTRESSED CONCRETE NON-COMPOSITE BOX BEAM BRIDGE MEMBERS, LEVEL 1 B21-48, 66'-6 1/4"	16	EACH			8				8		
516	1/2" PREFORMED EXPANSION JOINT FILLER	207	SF	52	53			52	50			
516	1 1/2" PREFORMED EXPANSION JOINT FILLER	430	SF			215				215		
516	2" PREFORMED EXPANSION JOINT FILLER	52	SF	13	13			13	13			
516	1/8" PREFORMED BEARING PAD	32	EACH			16				16		
516	ELASTOMERIC BEARING WITH INTERNAL LAMINATES ONLY (NEOPRENE), 6"x12"x1.48" THICK	64	EACH			32				32		
517	RAILING, MISC.: TRAFFIC RAIL	266	LF			133				133		4
518	POROUS BACKFILL WITH GEOTEXTILE FABRIC	114	CY	30	30			28	26			
518	SPECIAL - STEEL DRIP STRIP	254	LF			127				127		
518	6" PERFORATED CORRUGATED PLASTIC PIPE	202	LF	51	49			50	52			
518	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	78	LF	12	28			20	18			
526	REINFORCED CONCRETE APPROACH SLABS (T=17")	428	SY				214				214	
530	SPECIAL - STRUCTURES MISC.: TRANSVERSE POST-TENSIONING OF PRESTRESSED CONCRETE BOX BEAMS	LS										3
601	ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC, AS PER PLAN	59	CY	15	13			18	13			3
690	SPECIAL - REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINTS AND CRACKS	72	SY	18	18			18	18			21, 22

* DENOTES OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (CURRENT EDITION). ALL OTHER ITEMS REFERENCE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS.

DESIGN AGENCY
 PENNONI
 5202 BETHEL REED PARK, SUITE 200
 COLUMBUS, OHIO 43220

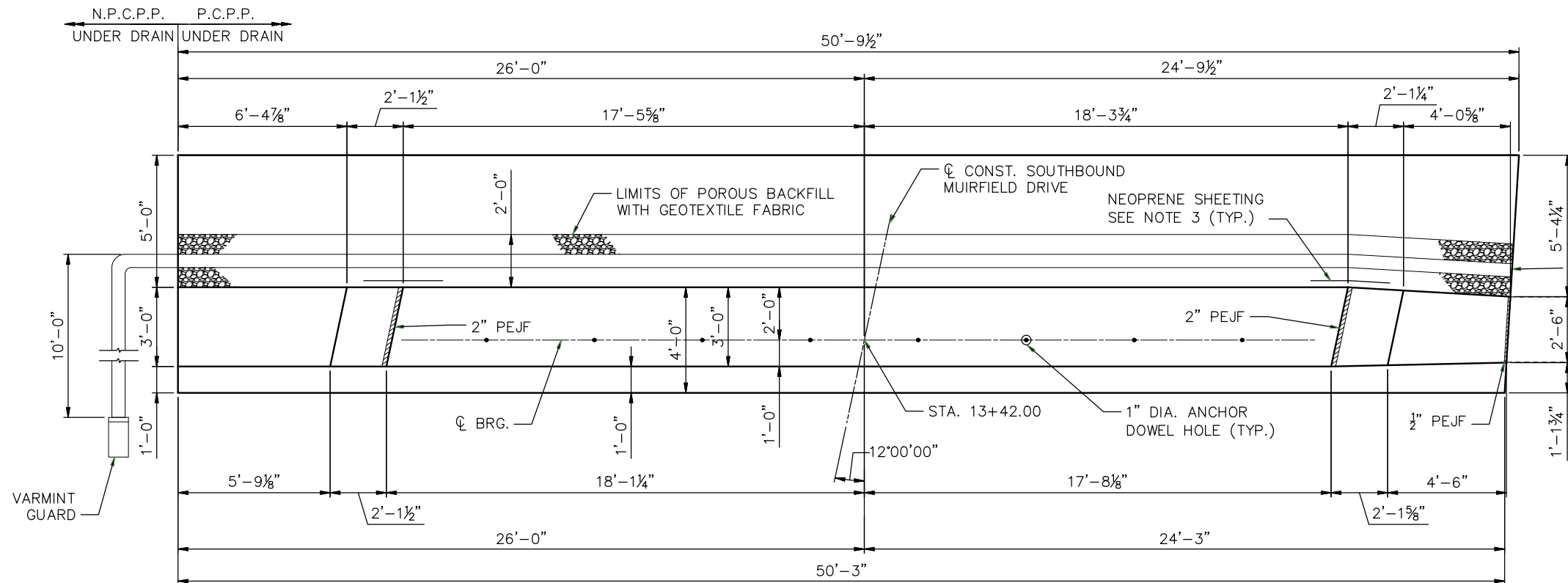
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ESTIMATED QUANTITIES
 BRIDGE NO. FRA-MURFD-0223LR
 MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN

MUIRFIELD DRIVE

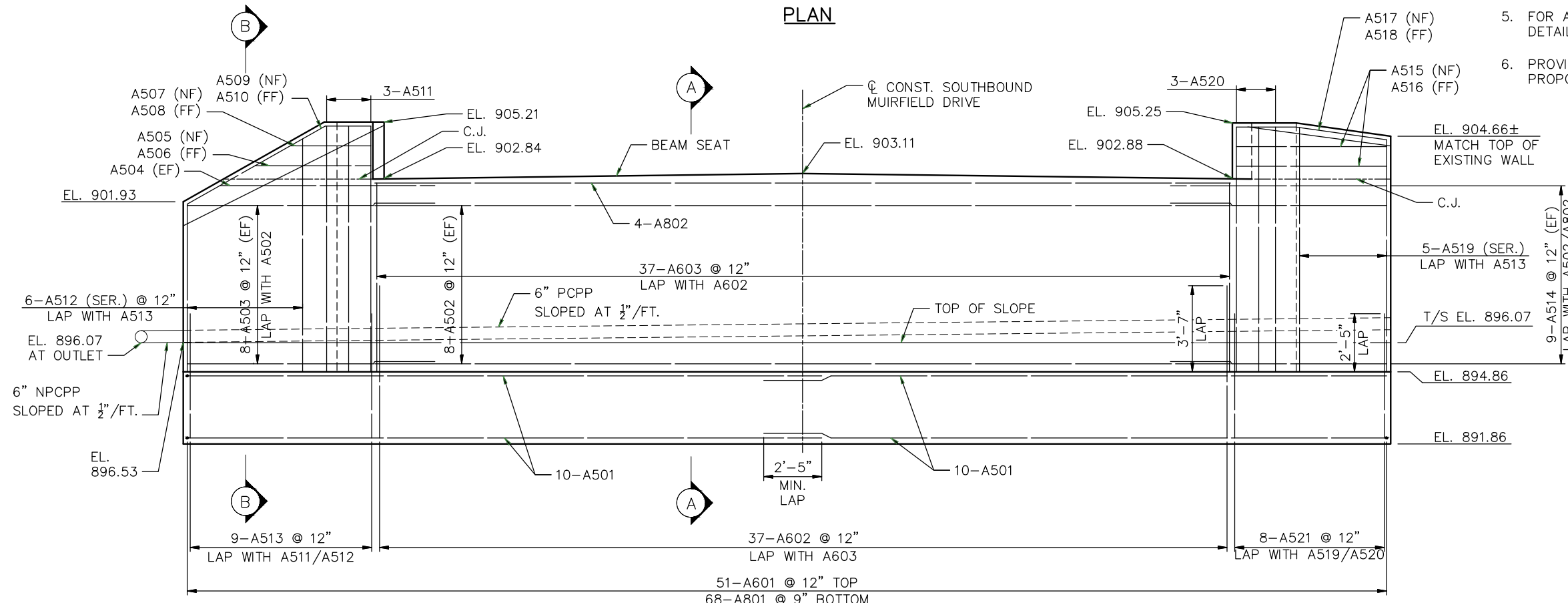
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NOTES

- BRIDGE SEAT REINFORCING, SETTING ANCHORS; ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF THE ANCHOR BAR HOLES.
- FOR DETAILS OF ANCHOR DOWEL BARS, SEE ODOT STD. DWG. PSBD-2-07.
- INSTALL A 3'-0" WIDE STRIP OF NEOPRENE SHEETING CENTERED ON THE JOINT AND EXTENDING FROM THE TOP OF THE BOX BEAM TO 1'-0" BELOW THE BEAM SEAT.
- FOR SECTION A-A AND B-B, SEE SHEET [8/24].
- FOR ADDITIONAL REAR AND FORWARD ABUTMENT DETAILS, SEE SHEETS [7/24] THRU [11/24].
- PROVIDE 1/2" PEJF BETWEEN EXISTING SUBSTRUCTURE AND PROPOSED.

PLAN



ELEVATION

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DESIGN AGENCY
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5202 BETHEL REED PARK, SUITE 200
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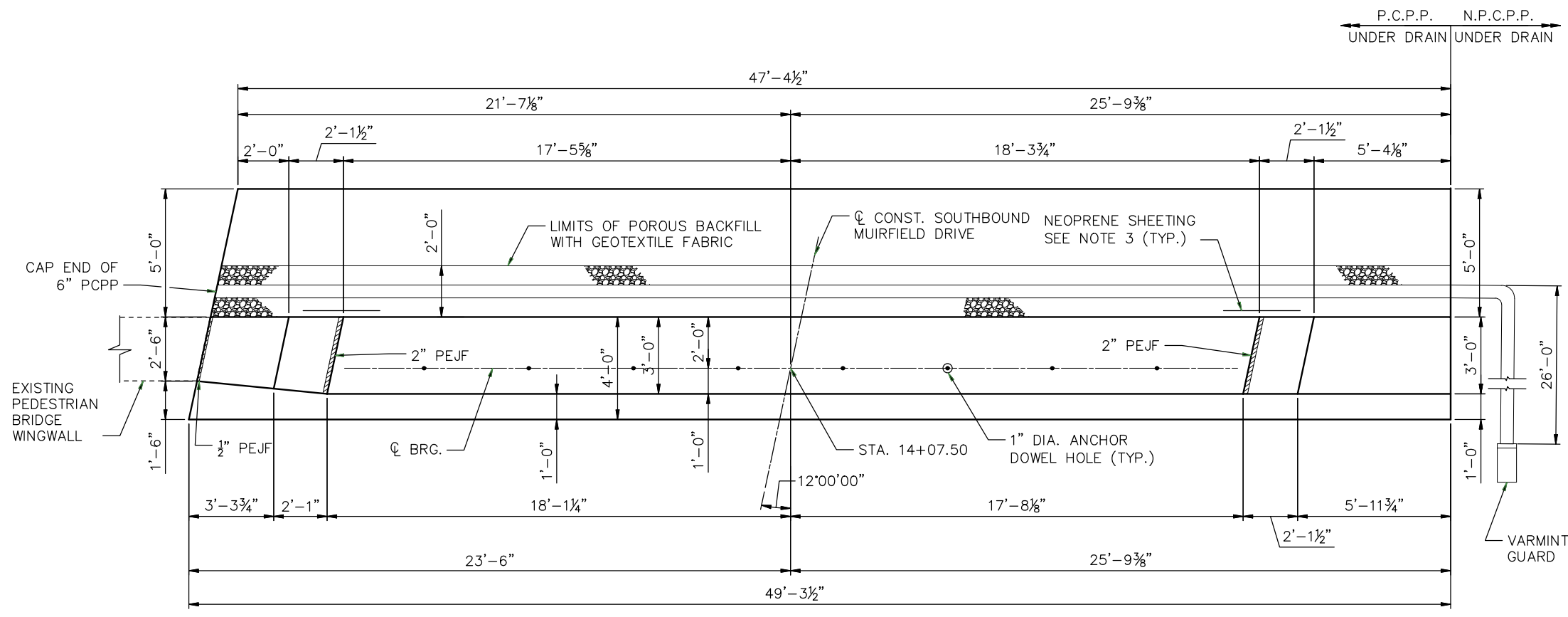
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DWJ
DATE
07/13/20

STRUCTURE FILE NUMBER
2868749L

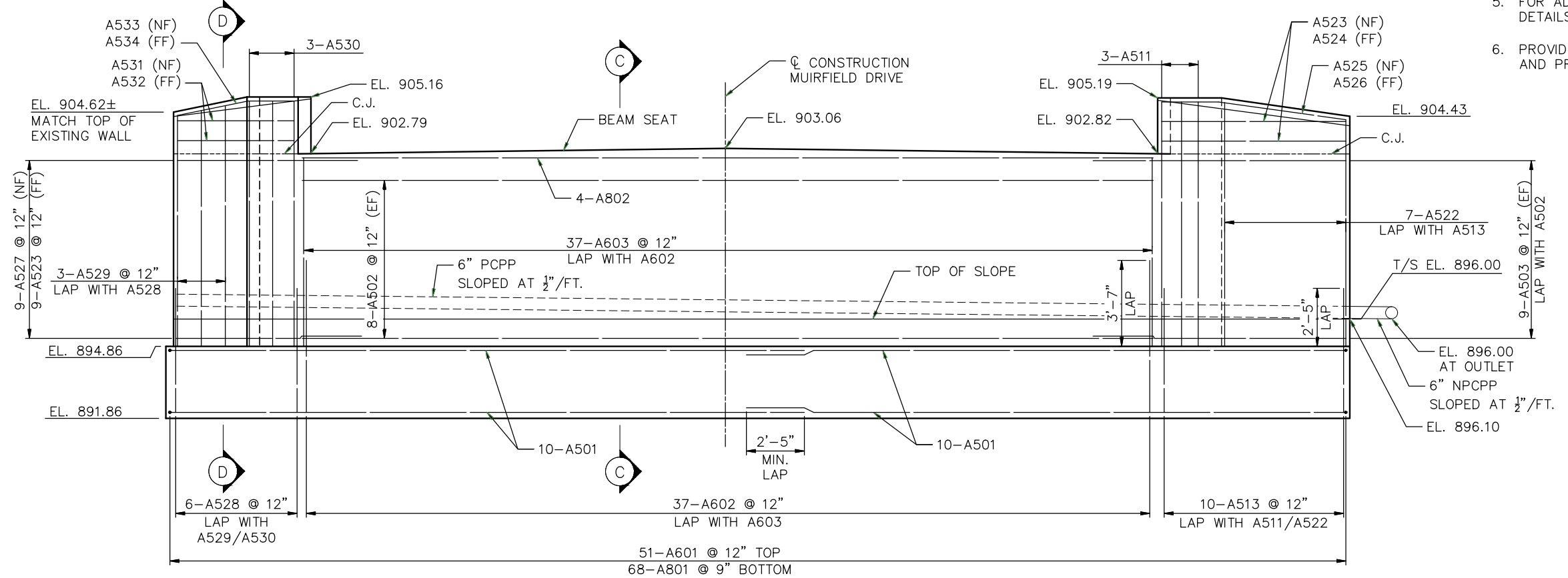
REAR ABUTMENT - SOUTHBOUND BRIDGE
BRIDGE NO. FRA-MURFD-0223L
MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN

MUIRFIELD DRIVE

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PLAN



ELEVATION

NOTES

1. BRIDGE SEAT REINFORCING, SETTING ANCHORS; ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF THE ANCHOR BAR HOLES.
2. FOR DETAILS OF ANCHOR DOWEL BARS, SEE ODOT STD. DWG. PSBD-2-07.
3. INSTALL A 3'-0" WIDE STRIP OF NEOPRENE SHEETING CENTERED ON THE JOINT AND EXTENDING FROM THE TOP OF THE BOX BEAM TO 1'-0" BELOW THE BEAM SEAT.
4. FOR SECTION C-C AND D-D, SEE SHEET [8/24].
5. FOR ADDITIONAL REAR AND FORWARD ABUTMENT DETAILS, SEE SHEETS [6/24] THRU [11/24].
6. PROVIDE 1/2" PEJF BETWEEN EXISTING SUBSTRUCTURE AND PROPOSED.



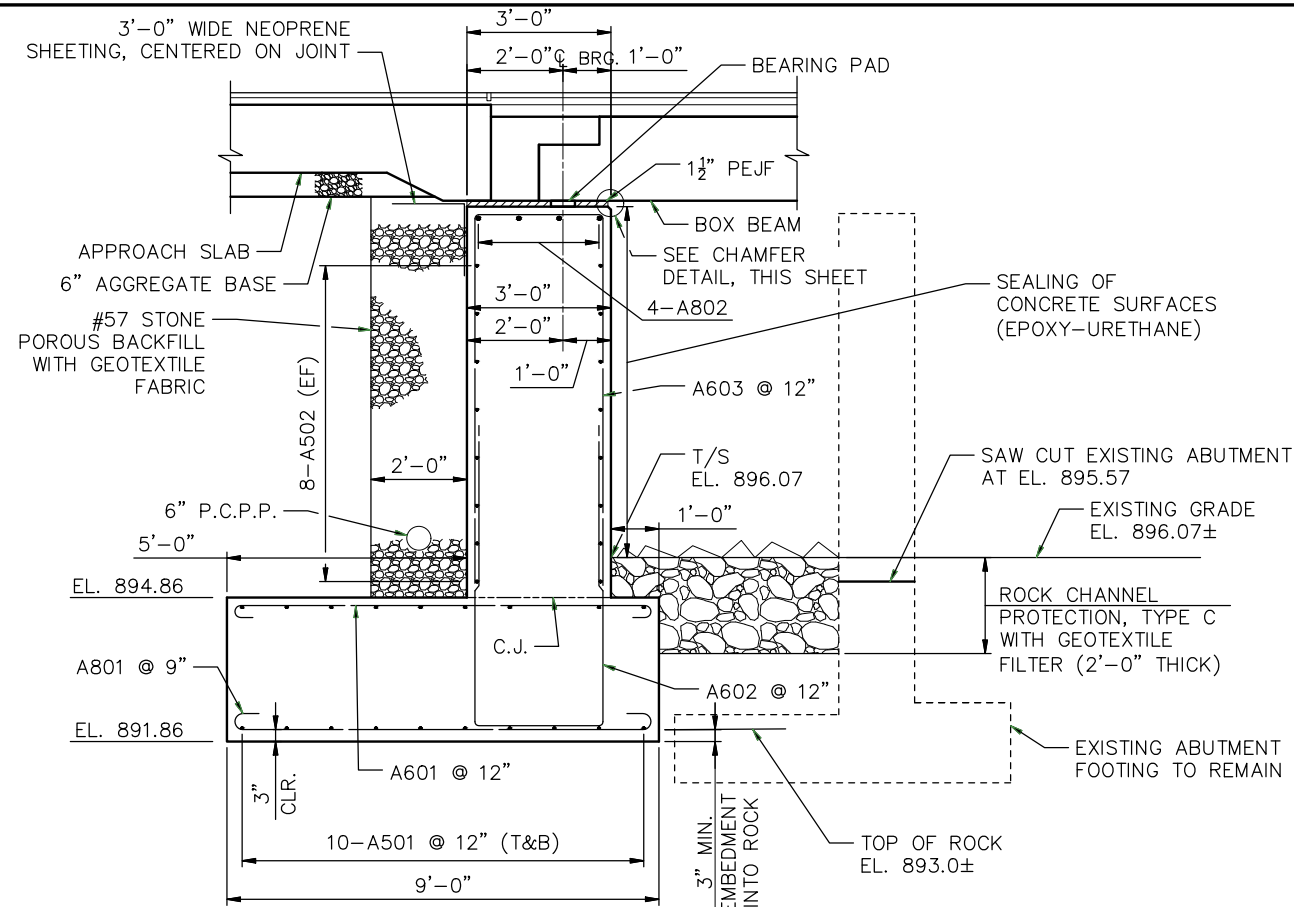
DESIGN AGENCY
PENNONI
5202 BETHEL REED PARK, SUITE 200
COLUMBUS, OHIO 43220

DESIGNED DATE 07/13/20
DRAWN DWJ
STRUCTURE FILE NUMBER 2868749L

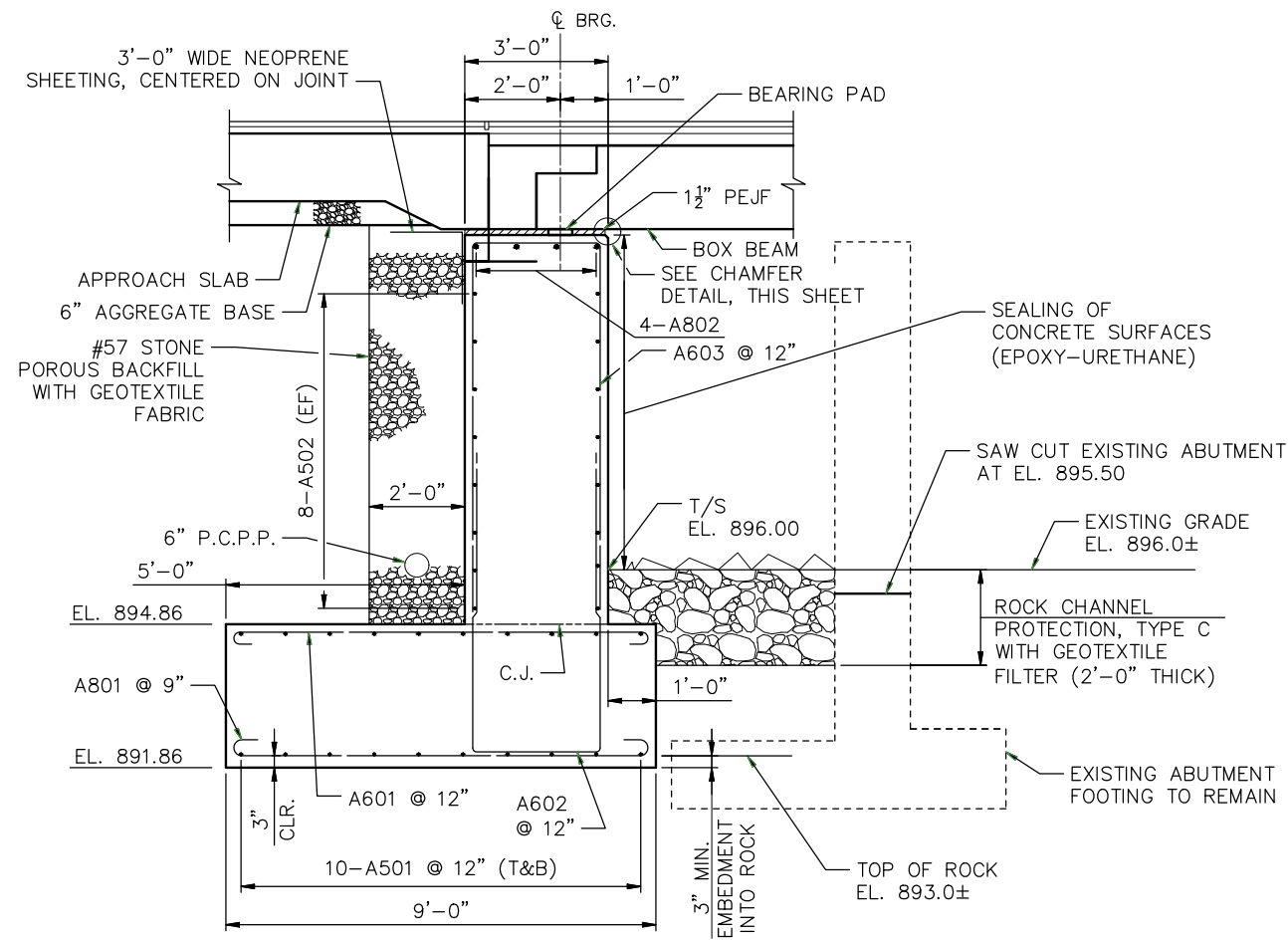
CHECKED ARA
DESIGNED CTL

FORWARD ABUTMENT - SOUTHBOUND BRIDGE
BRIDGE NO. FRA-MURFD-0223L
MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN

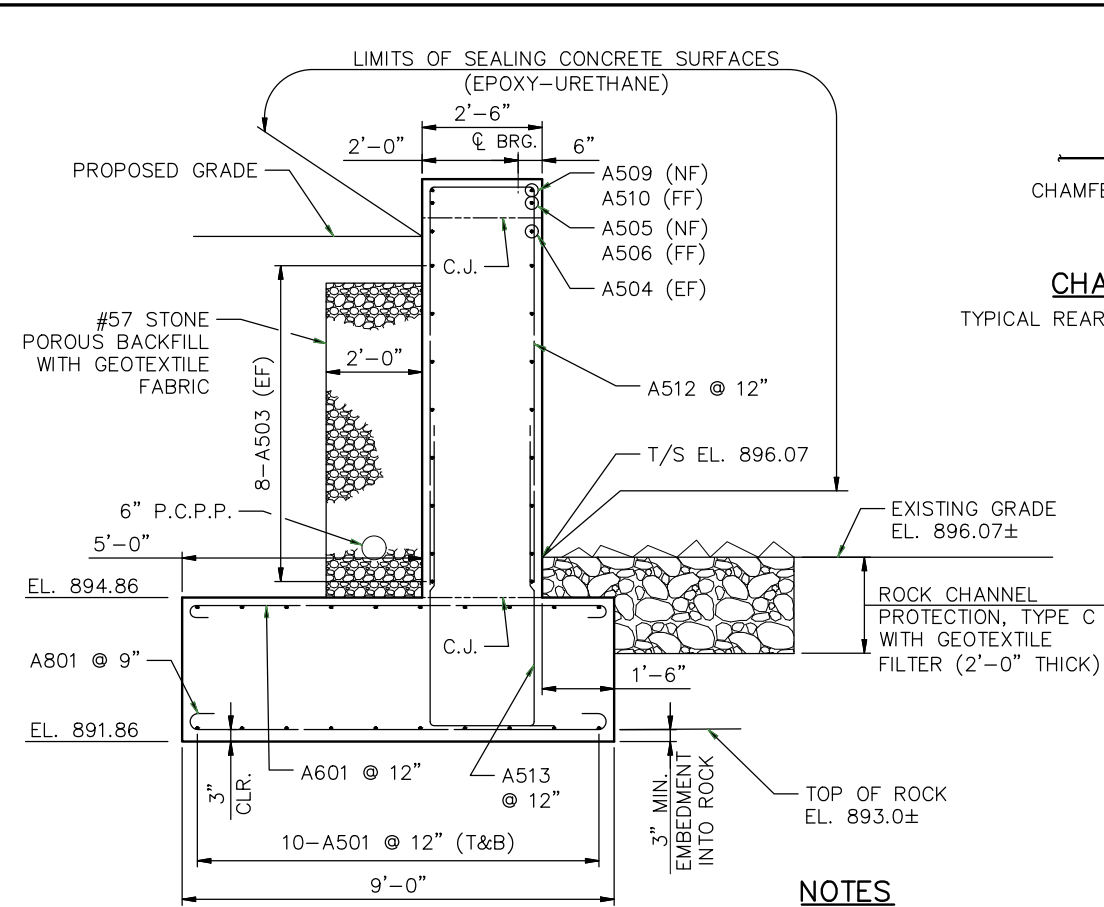
MUIRFIELD DRIVE



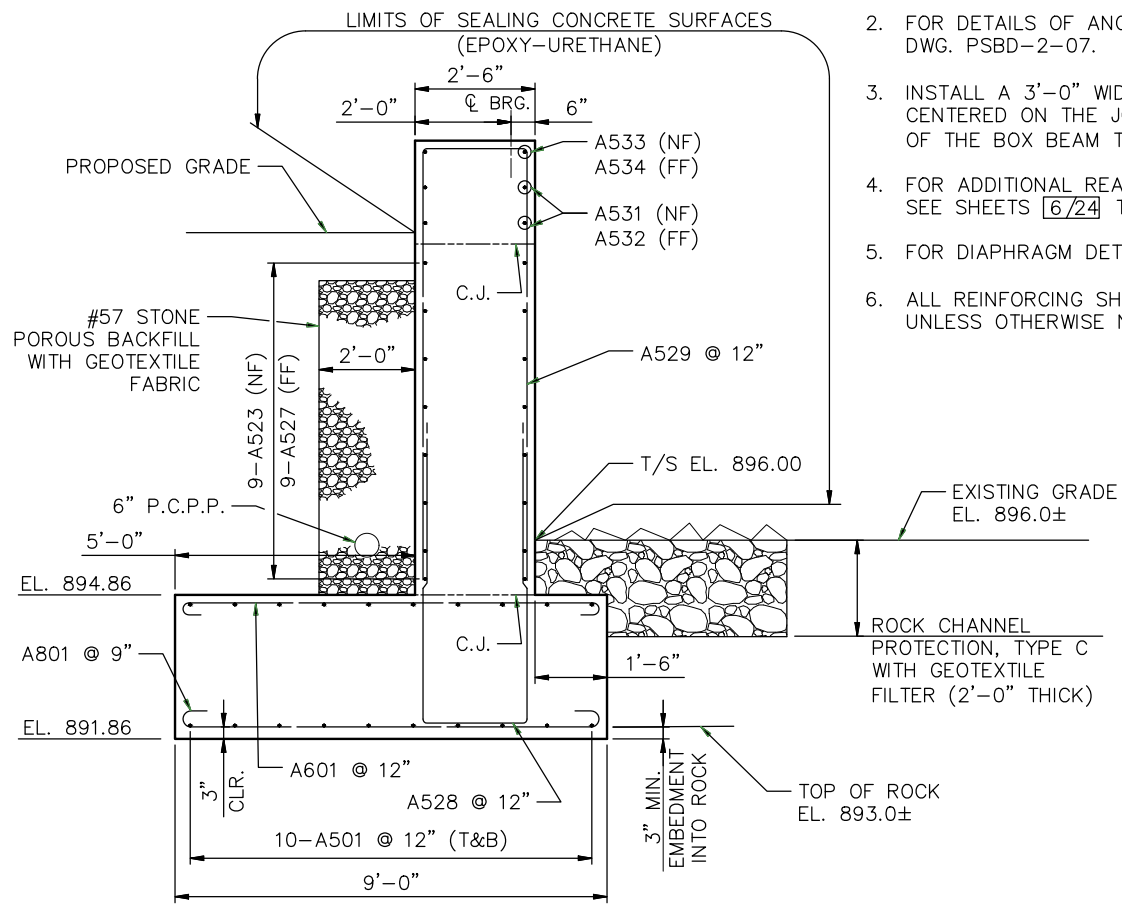
SECTION A-A
REAR ABUTMENT



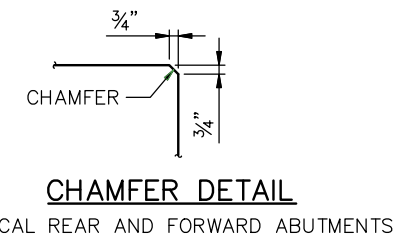
SECTION C-C
FORWARD ABUTMENT



SECTION B-B
REAR ABUTMENT



SECTION D-D
FORWARD ABUTMENT



NOTES

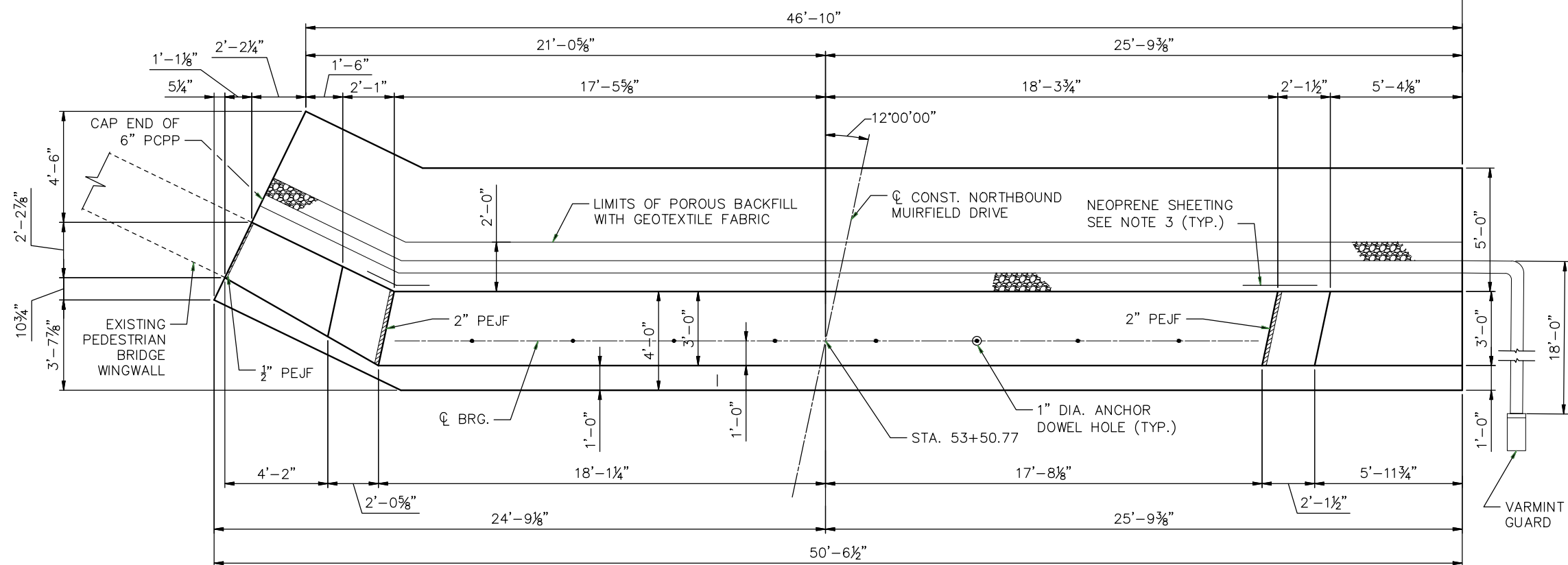
- BRIDGE SEAT REINFORCING, SETTING ANCHORS; ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF THE ANCHOR BAR HOLES.
- FOR DETAILS OF ANCHOR DOWEL BARS, SEE ODOT STD. DWG. PSBD-2-07.
- INSTALL A 3'-0" WIDE STRIP OF NEOPRENE SHEETING CENTERED ON THE JOINT AND EXTENDING FROM THE TOP OF THE BOX BEAM TO 1'-0" BELOW THE BEAM SEAT.
- FOR ADDITIONAL REAR AND FORWARD ABUTMENT DETAILS, SEE SHEETS 6/24 THRU 11/24.
- FOR DIAPHRAGM DETAILS, SEE SHEET 14/24.
- ALL REINFORCING SHALL HAVE 2" OF CLEAR COVER UNLESS OTHERWISE NOTED.

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DESIGN AGENCY	DATE	DESIGNED	DESIGNATION
PENNONI	07/13/20	CTL	SOUTHBOUND BRIDGE
STRUCTURE FILE NUMBER	REVIEWED	CHECKED	BRIDGE NO. FRA-MURFD-0223L
2868749L	DWJ	ARA	MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN
			5202 BETHEL REED PARK, SUITE 200
			COLUMBUS, OHIO 43220
8 / 24		MUIRFIELD DRIVE	
29			
45			



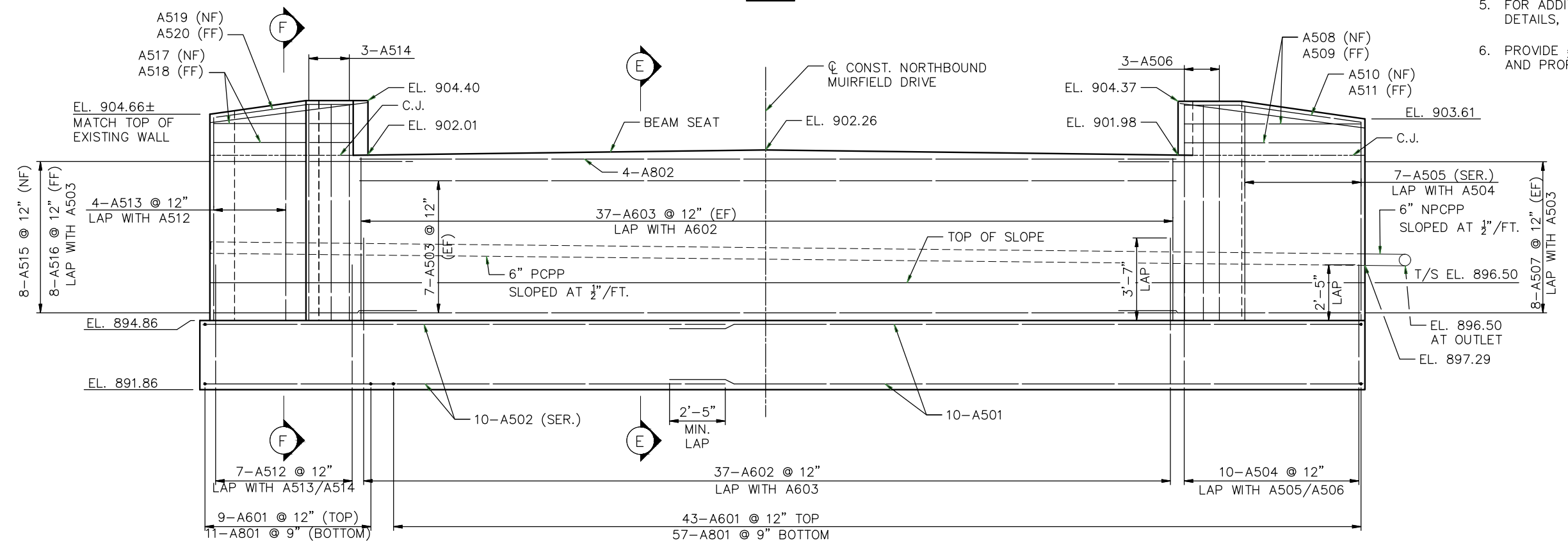
P.C.P.P. UNDER DRAIN N.P.C.P.P. UNDER DRAIN



PLAN

NOTES

- BRIDGE SEAT REINFORCING, SETTING ANCHORS; ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF THE ANCHOR BAR HOLES.
- FOR DETAILS OF ANCHOR DOWEL BARS, SEE ODOT STD. DWG. PSBD-2-07.
- INSTALL A 3'-0" WIDE STRIP OF NEOPRENE SHEETING CENTERED ON THE JOINT AND EXTENDING FROM THE TOP OF THE BOX BEAM TO 1'-0" BELOW THE BEAM SEAT.
- FOR SECTION E-E AND F-F, SEE SHEET 8/24.
- FOR ADDITIONAL REAR AND FORWARD ABUTMENT DETAILS, SEE SHEETS 6/24 THRU 11/24.
- PROVIDE 3/4" PEJF BETWEEN EXISTING SUBSTRUCTURE AND PROPOSED.



ELEVATION

DESIGN AGENCY: PENNONI
5202 BETHEL REED PARK, SUITE 200
COLUMBUS, OHIO 43220

DATE: 07/13/20
REVIEWED: DWJ
STRUCTURE FILE NUMBER: 2668757R

DRAWN: CTL
CHECKED: ARA

REAR ABUTMENT - NORTHBOUND BRIDGE
BRIDGE NO. FRA-MURFD-023R
MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN

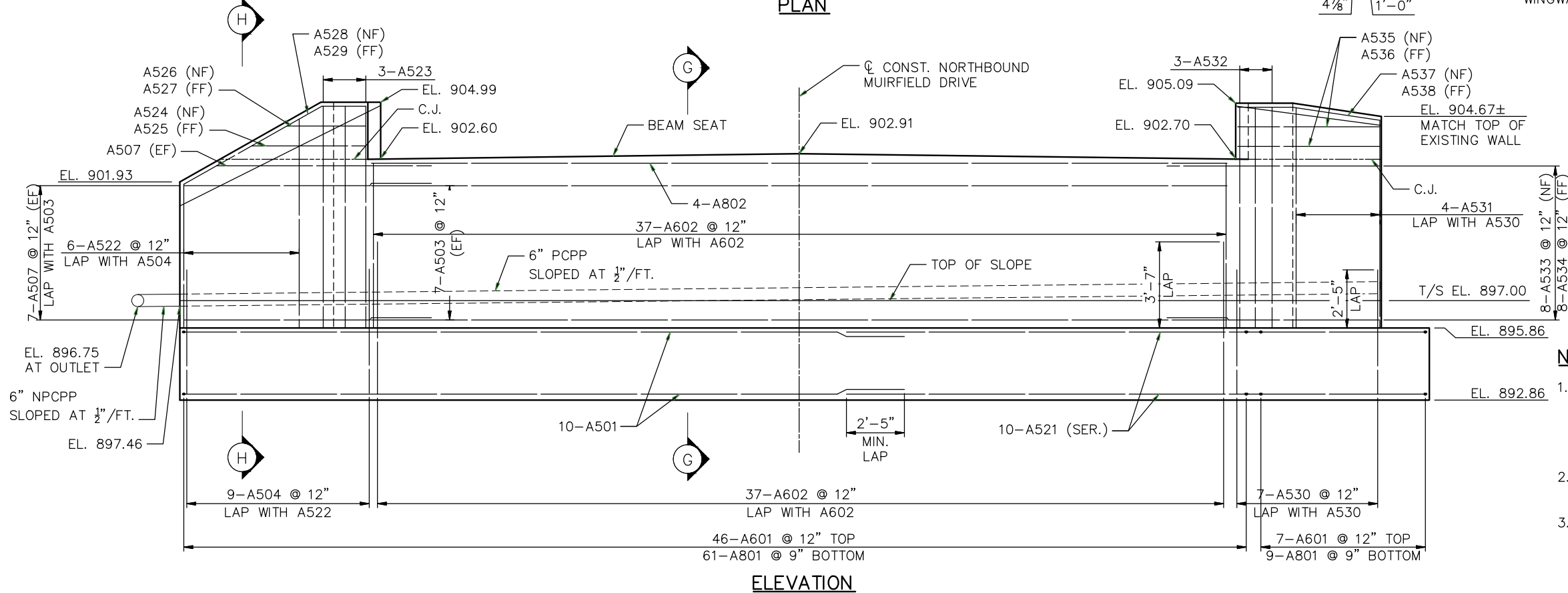
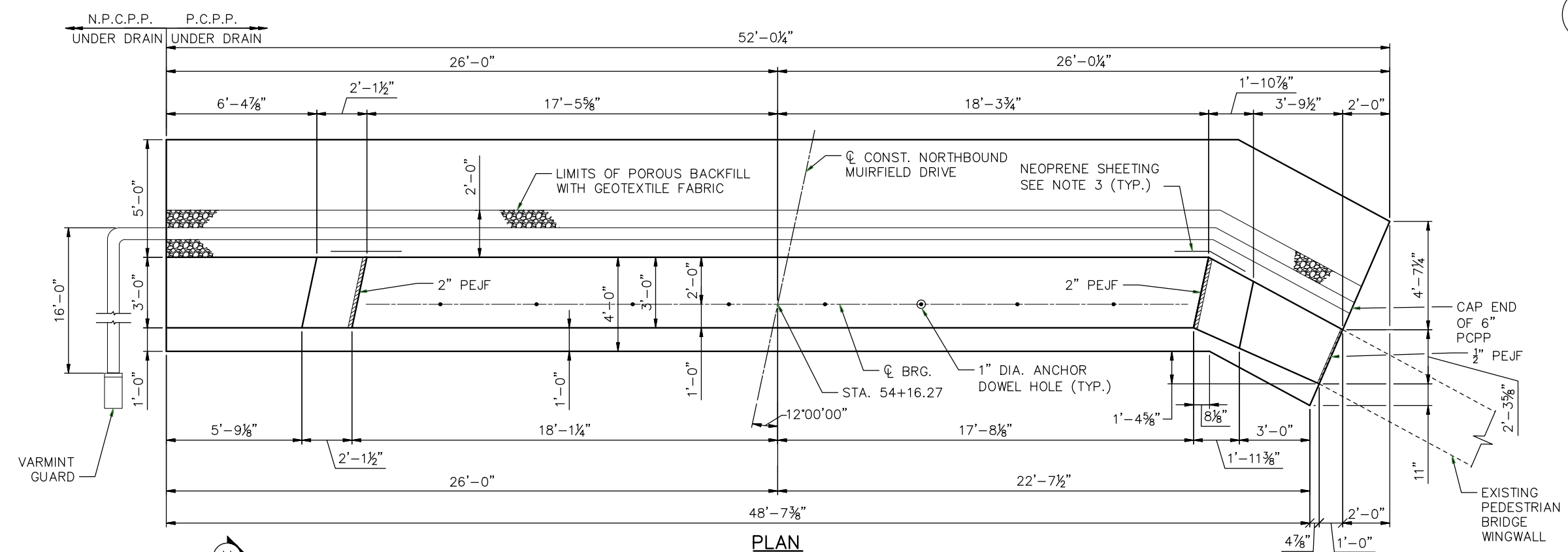
MUIRFIELD DRIVE

9 / 24

30
45

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- NOTES**
- BRIDGE SEAT REINFORCING, SETTING ANCHORS; ACCURATELY PLACE REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT TO AVOID INTERFERENCE WITH THE DRILLING OF THE ANCHOR BAR HOLES.
 - FOR DETAILS OF ANCHOR DOWEL BARS, SEE ODOT STD. DWG. PSBD-2-07.
 - INSTALL A 3'-0" WIDE STRIP OF NEOPRENE SHEETING CENTERED ON THE JOINT AND EXTENDING FROM THE TOP OF THE BOX BEAM TO 1'-0" BELOW THE BEAM SEAT.
 - FOR SECTION G-G AND H-H, SEE SHEET [8/24].
 - FOR ADDITIONAL REAR AND FORWARD ABUTMENT DETAILS, SEE SHEETS [6/24] THRU [11/24].
 - PROVIDE 1/2" PEJF BETWEEN EXISTING SUBSTRUCTURE AND PROPOSED.



DESIGN AGENCY
 PENNONI
 5202 BETHEL REED PARK, SUITE 200
 COLUMBUS, OHIO 43220

DATE
 07/13/20

REVIEWED
 DWJ

STRUCTURE FILE NUMBER
 2968757R

DESIGNED
 CTL

CHECKED
 ARA

DRAWN
 CTL

REVISED

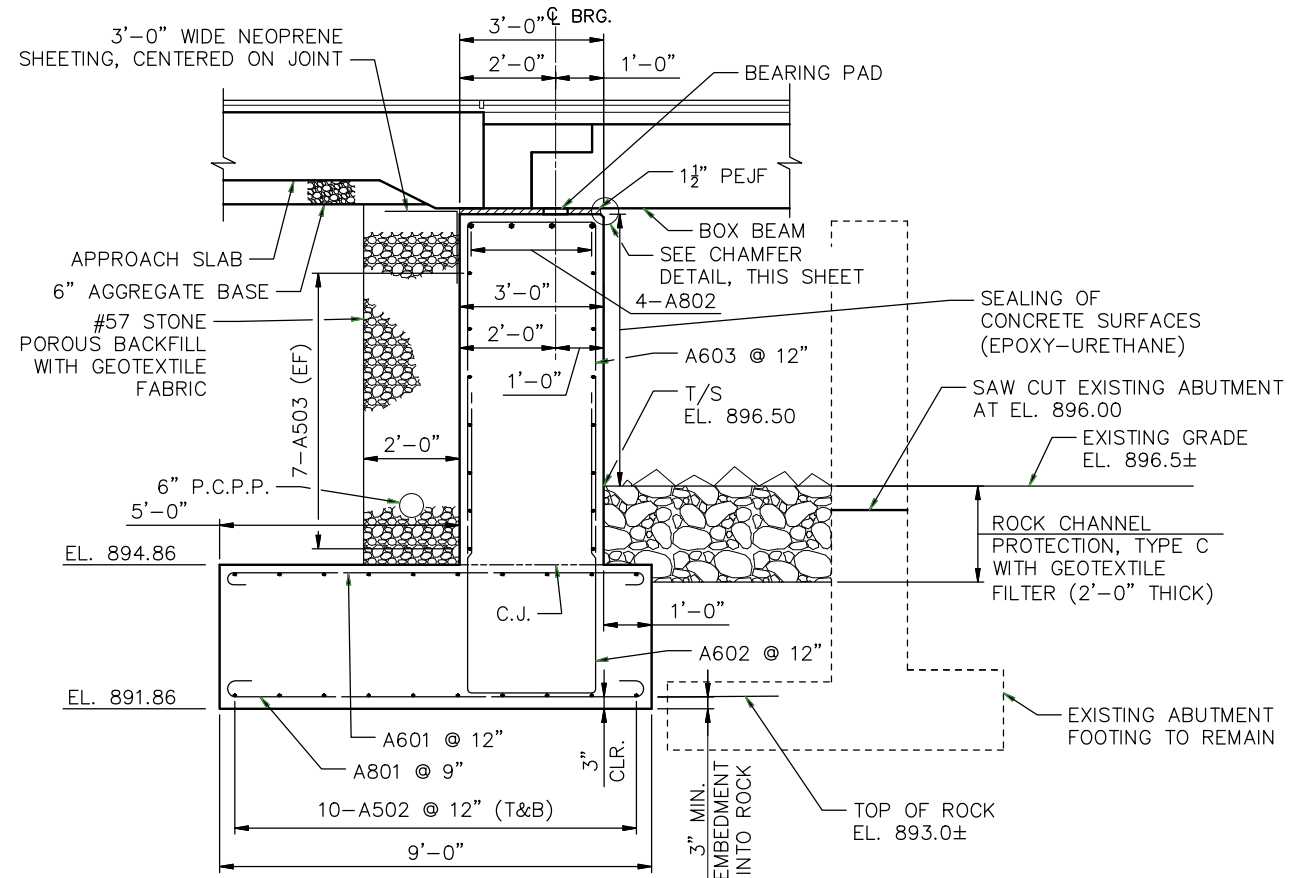
FORWARD ABUTMENT - NORTHBOUND BRIDGE
 BRIDGE NO. FRA-MURFD-0223R
 MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN

MUIRFIELD DRIVE

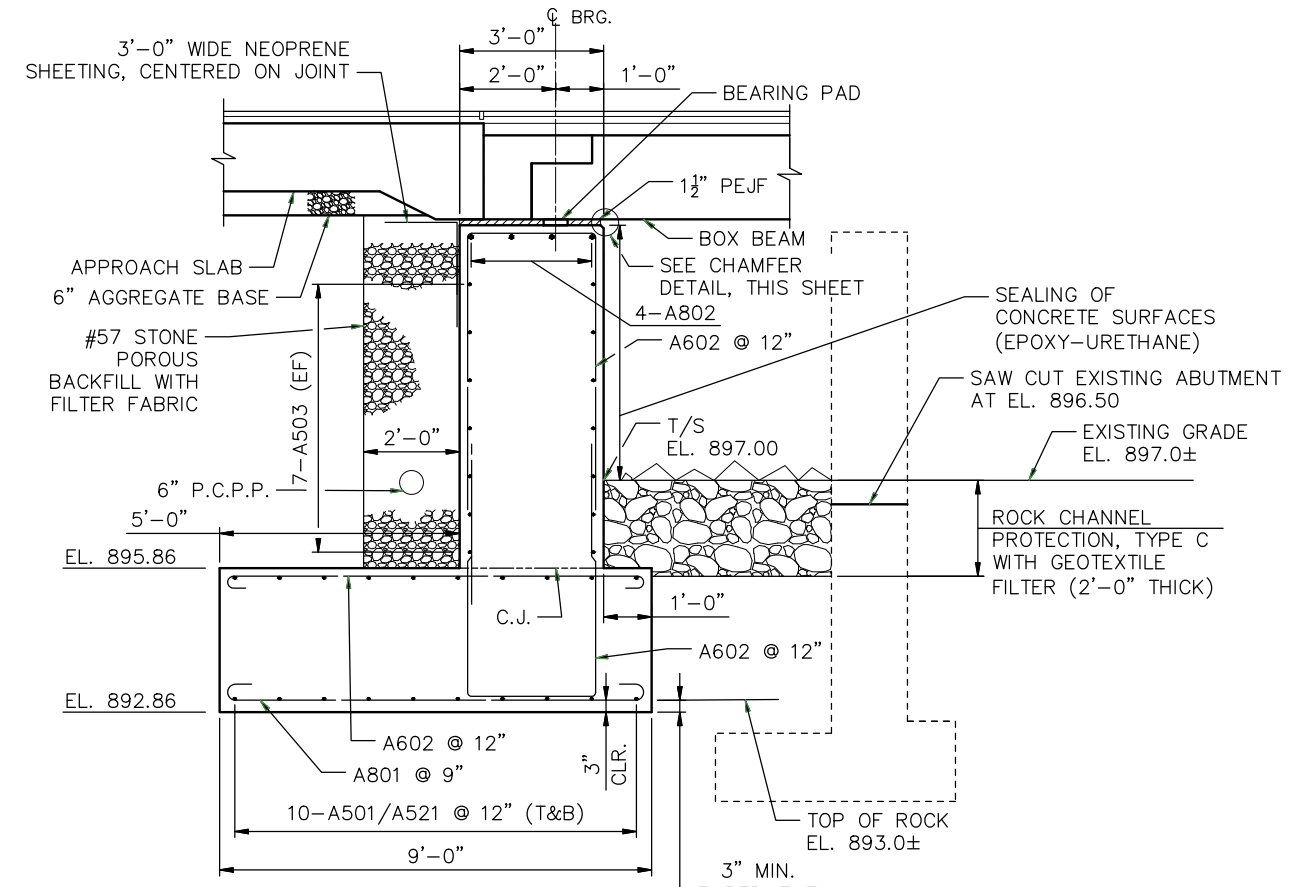
10 / 24

31
 45

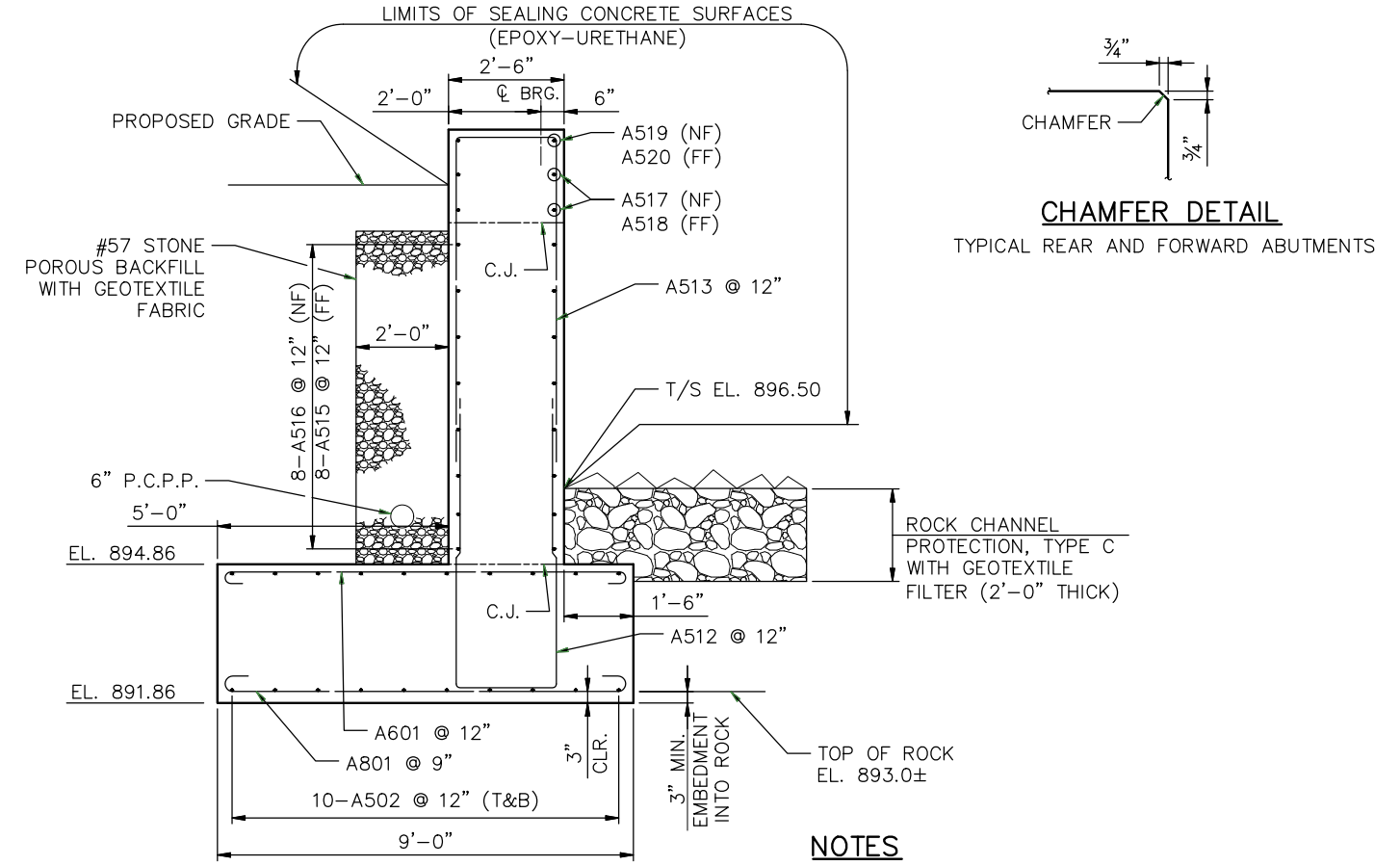
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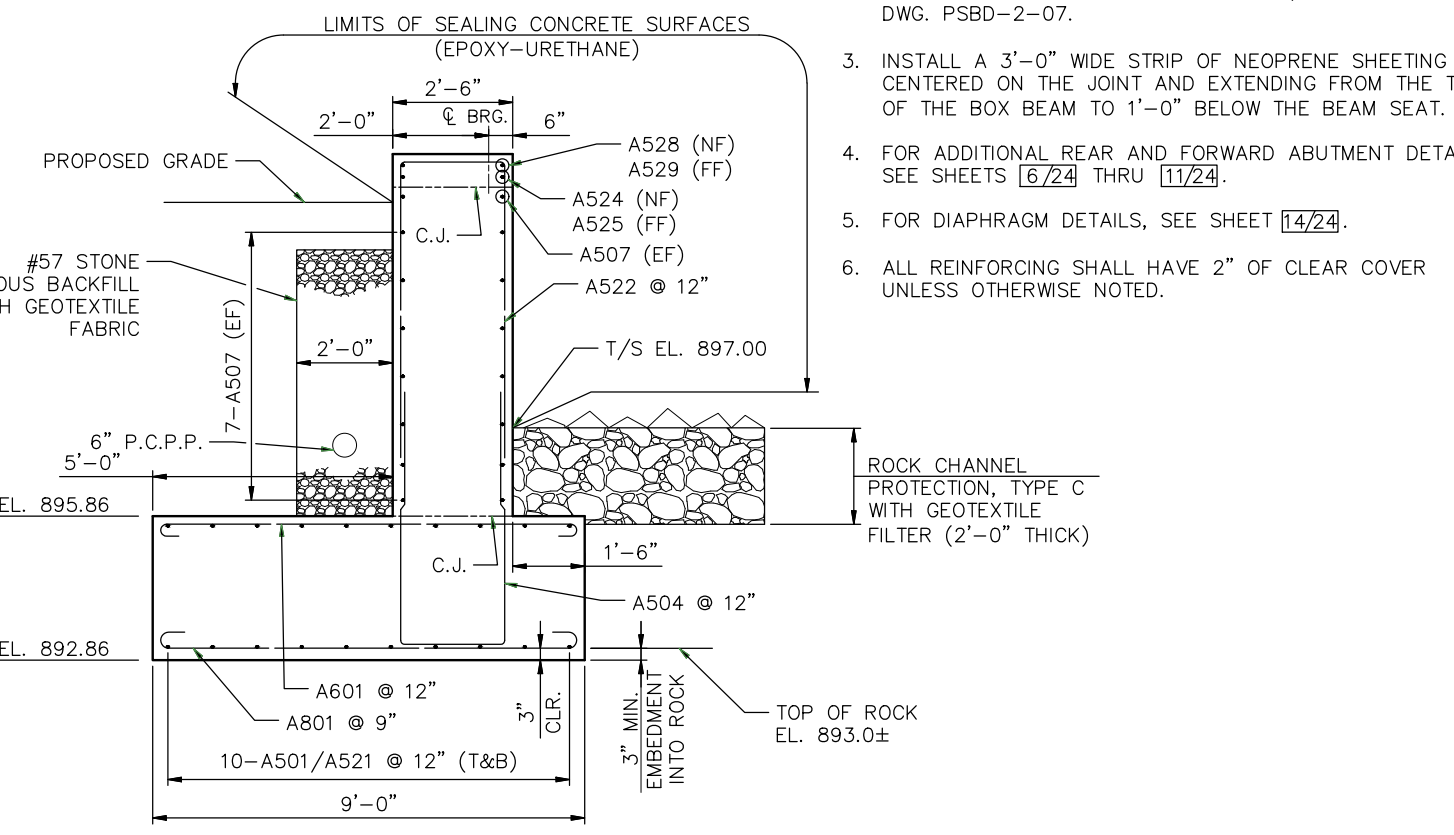
SECTION E-E
REAR ABUTMENT



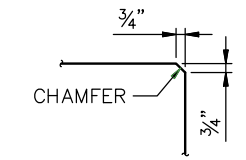
SECTION G-G
FORWARD ABUTMENT



SECTION F-F
REAR ABUTMENT



SECTION H-H
FORWARD ABUTMENT



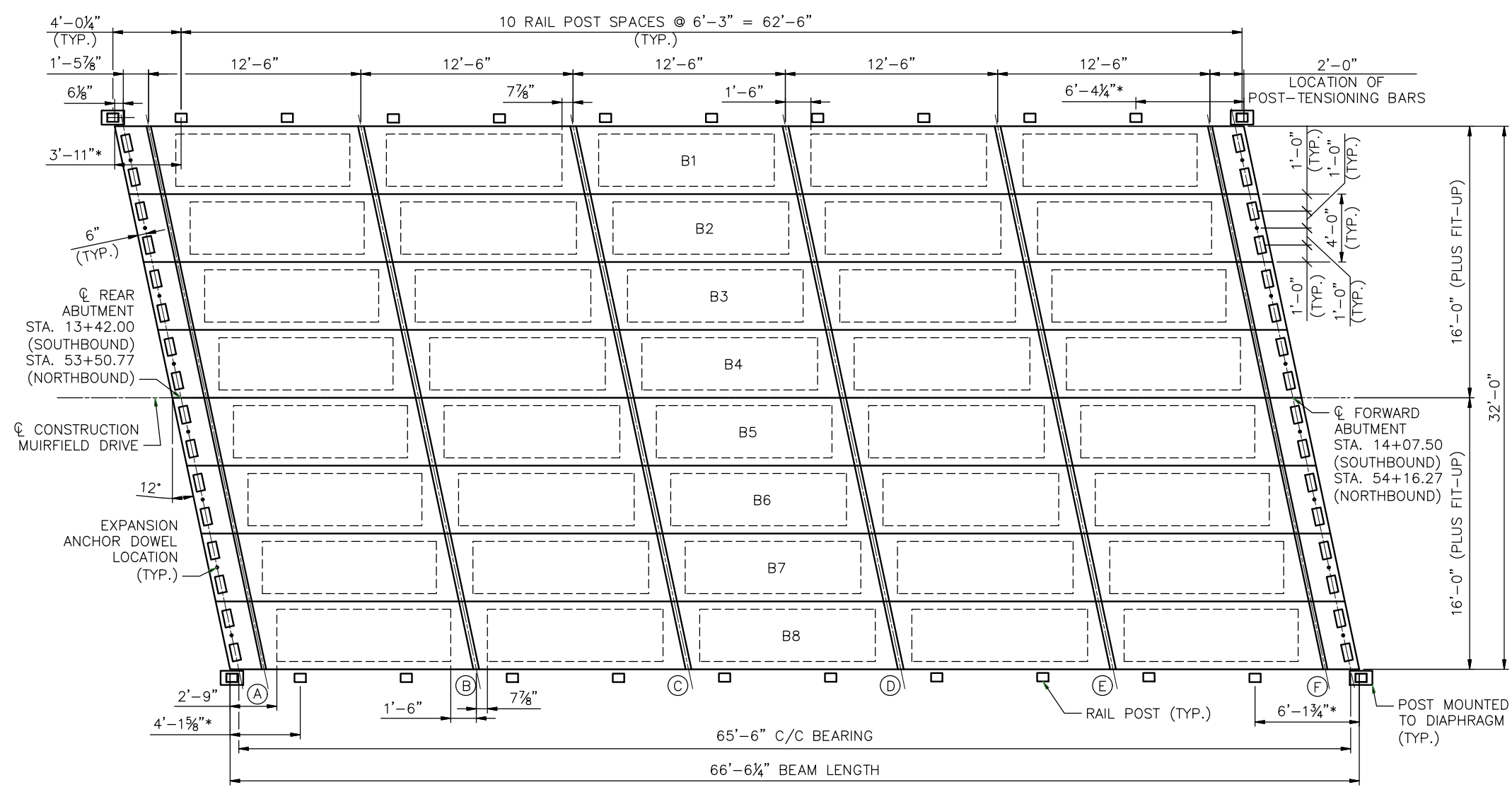
CHAMFER DETAIL
TYPICAL REAR AND FORWARD ABUTMENTS

NOTES

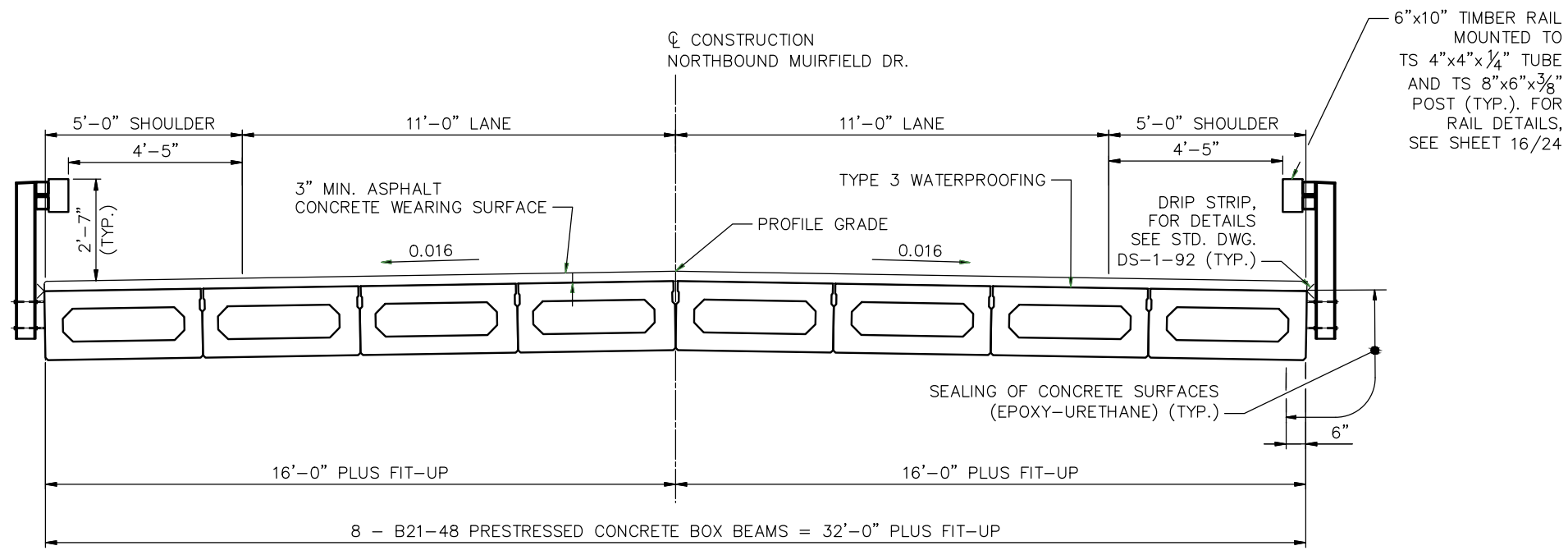
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- FOR ADDITIONAL REAR AND FORWARD ABUTMENT DETAILS, SEE SHEETS [6/24] THRU [11/24].
- FOR DIAPHRAGM DETAILS, SEE SHEET [14/24].
- ALL REINFORCING SHALL HAVE 2" OF CLEAR COVER UNLESS OTHERWISE NOTED.

DESIGN AGENCY PENNCON 5202 BETHEL REED PARK, SUITE 200 COLUMBUS, OHIO 43220	DATE 07/13/20	DESIGNED CTL	DRAWN CTL	REVIEWED DWJ	STRUCTURE FILE NUMBER 2668757R
ABUTMENT SECTIONS - NORTHBOUND BRIDGE					
BRIDGE NO. FRA-MURFD-0223R MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN					
MUIRFIELD DRIVE					
11 / 24					
32 45					

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FRAMING PLAN * MEASURED FROM END OF BEAM

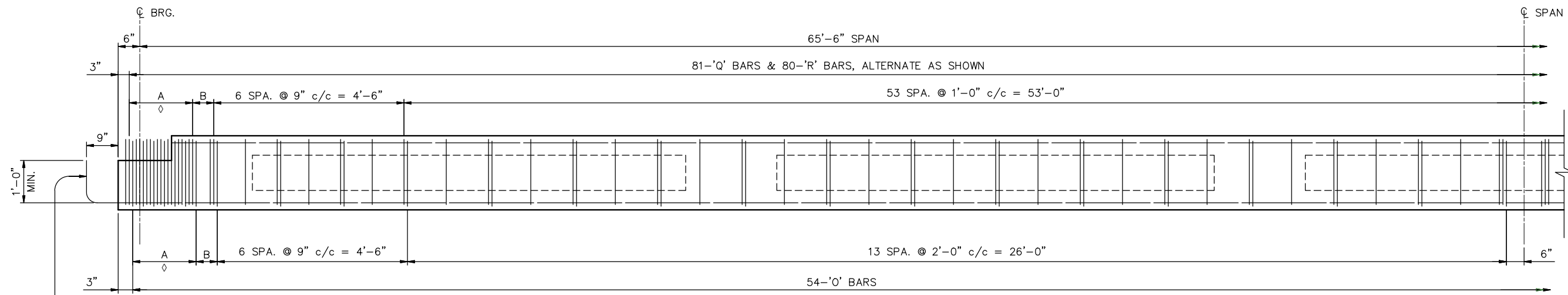


TRANSVERSE SECTION
NORTHBOUND BRIDGE SHOWN, SOUTHBOUND BRIDGE SIMILAR

NOTES:

1. ALL REINFORCING STEEL FOR BOX BEAMS SHALL BE EPOXY COATED.
2. FOR PRESTRESSED BOX BEAM DETAILS, SEE STD. DWG. PSBD-2-07.
3. FOR DRIP STRIP DETAILS, SEE STD. DWG. DS-1-92.
4. FOR RAILING DETAILS SEE SHEET 16/24.
5. INSTALL WASHER AND GROUT STOP BY GLUING TO ONE SIDE, FOR THE ENTIRE LENGTH, OF EACH BEAM PRIOR TO SETTING BEAMS. GLUE SHALL BE APPROVED BY THE ENGINEER. GROUT STOP MAY BE INSTALLED AFTER BEAMS ARE SET. GLUE TO BE SUFFICIENTLY CURED BEFORE PLACING BEAMS. USE OF EXPANDING FOAM IS LIMITED TO ONLY FILLING SMALL GAPS AND SHALL NOT BE USED IN LIEU OF THE WASHER AND THE GROUT STOP. THE CONTRACTOR SHALL MAINTAIN A SUFFICIENT QUANTITY OF EXPANDING FOAM ON HAND TO PLUG ANY LEAKS WHICH MAY OCCUR DURING GROUTING OF THE SHEAR KEYWAYS.
6. GROUT FOR THE KEYWAYS, GAPS BETWEEN BEAMS, BLOCKOUTS AND RECESSES SHALL BE A NON-SHRINK GROUT (ITEM 705.22). THE GROUT SHALL BE PREPARED, PLACED AND CURED PER MANUFACTURER'S SPECIFICATIONS. CARE SHALL BE TAKEN TO INSURE THAT THE GROUT IS PROPERLY PLACED AND CONSOLIDATED. CURING (TIMING, MATERIALS, LENGTH OF CURE, ETC.) SHALL BE AS PER THE MANUFACTURER'S SPECIFICATIONS. EXPOSED CONCRETE SURFACES AT BLOCKOUTS AND RECESSES SHALL BE TREATED WITH A BONDING AGENT, APPROVED BY THE MANUFACTURER OF THE GROUT, PRIOR TO FILLING. THE STRENGTH REQUIREMENTS OF THE GROUT SHALL BE MET BY CONDUCTING COMPRESSIVE STRENGTH TESTS ON CYLINDERS TAKEN DURING THE PLACING OF THE GROUT IN THE GAP BETWEEN BEAMS AND SHEAR KEY AREAS. DURING THE ACTUAL MIXING AND PLACING OPERATION, A MINIMUM OF THREE (3) -3" x 6" CYLINDERS OF THE MATERIAL SHALL BE TAKEN BY ODOT. IF THE GROUTING OPERATION EXTENDS BEYOND ONE DAY FOR A REQUIRED AREA, A MINIMUM OF THREE ADDITIONAL CYLINDERS WILL BE TAKEN ON EACH ADDITIONAL DAY. THE SAMPLE TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH ASTM C39. CURING METHOD(S) SHALL BE SIMILAR TO THE CURING METHOD USED DURING THE CONSTRUCTION. THE CYLINDERS ARE TO BE PROVIDED BY THE CONTRACTOR. ANY OTHER APPLICABLE GROUT TESTING SHALL BE PERFORMED BY THE CONTRACTOR.
7. POST-TENSIONING AT DIAPHRAGMS SHALL BE PERFORMED IN THE FOLLOWING ORDER: (A), (C), (F), (D), (B), (E).
8. AFTER POST-TENSIONING AND GROUTING OPERATIONS ARE COMPLETE AND APPROVED, TRIM EXCESS POST-TENSIONING BAR USING A SAW. DO NOT TRIM BARS BY TORCH CUTTING. REPAIR TRIMMED ENDS ACCORDING TO 711.02. THE BAR SHALL BE TRIMMED SUFFICIENTLY TO ALLOW A MINIMUM GROUT COVER OF 2 INCHES.
9. INSTALL ANCHOR DOWELS AFTER INITIAL STRESSING.

DESIGN AGENCY PENNCON	DATE 07/19/20	DRAWN JTS	DESIGNED CTL	<p align="center">TRANSVERSE SECTION & FRAMING PLAN</p> BRIDGE NO. FRA-MURFD-0223LFR MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN
5202 BETHEL REED PARK, SUITE 200 COLUMBUS, OHIO 43220	STRUCTURE FILE NUMBER 2568749L - 2568757R	REVIEWED DWJ	CHECKED ARA	
				<div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 12 / 24 </div> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 33 </div> <div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 45 </div>

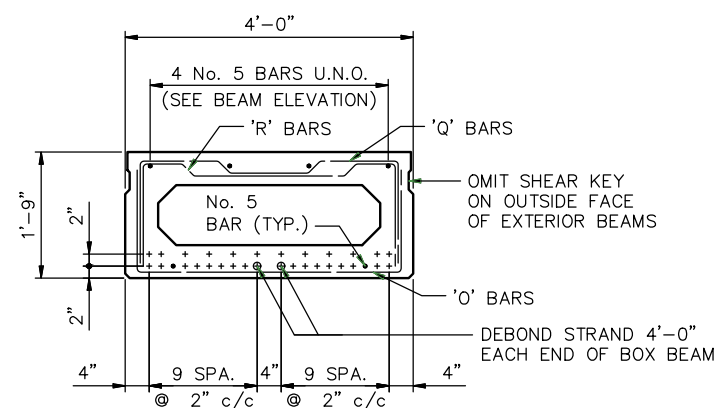
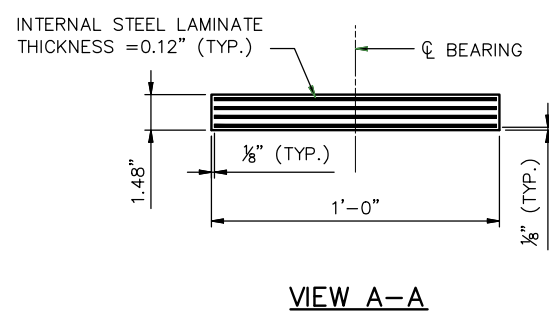
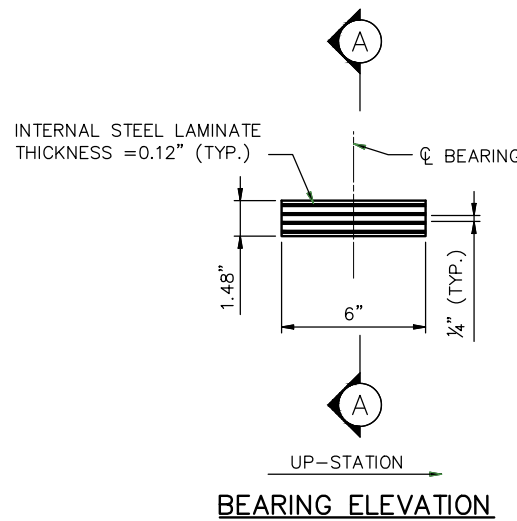


PROVIDE 4 No. 6 EPOXY COATED BARS OR 4 BENT-UP STRANDS AT EACH BEAM END, FABRICATOR'S OPTION. IF No. 6 BARS ARE USED, THEY SHALL BE LOCATED ON TOP OF THE STIRRUPS AND SPACED UNIFORMLY ACROSS THE BEAM.

PART ELEVATION - TYPICAL BOX BEAM

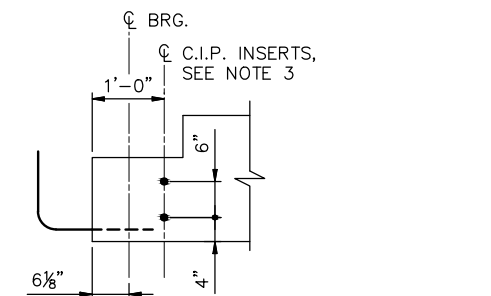
NOTE: BEAM IS SYMMETRICAL ABOUT CL SPAN

◇ - SKEWED END REINFORCING AND NOTCH DETAILS, SEE STANDARD DRAWING PSBD-2-07
 A = 6 SPA. @ 3" c/c = 1'-6"
 B = 1 SPA. @ 6"

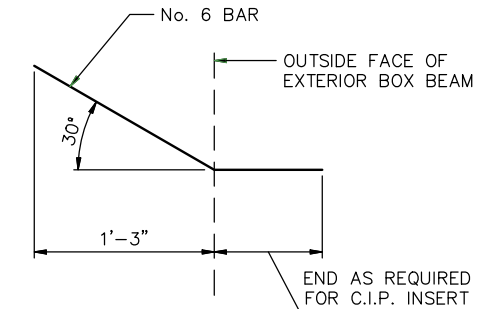


B21-48, 65'-6" SPAN

30 - 1/2" STRANDS
 SEE BEAM ELEVATION FOR SPACING OF THE 'Q', 'R' & 'O' No. 4 STIRRUP BARS



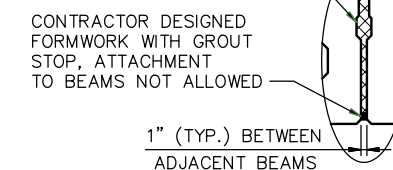
EXTERIOR BOX BEAM END ELEVATION



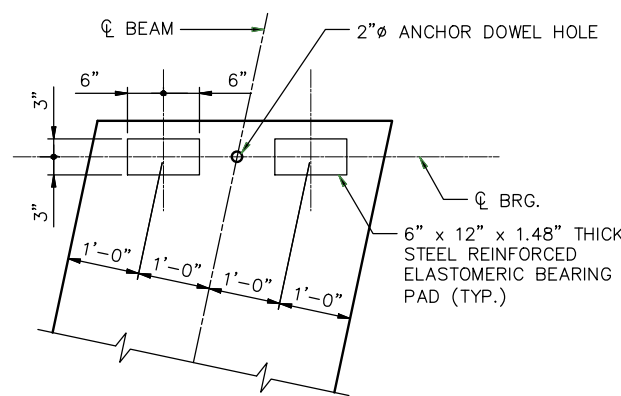
No. 6 BAR DETAIL

SEE NOTE 3 (PLAN VIEW)

HIGH EARLY STRENGTH GROUT IS TO BE USED, ACCORDING TO ALTERNATE 2, AS DESCRIBED ON SHEET 1 OF STD. DWG. PSBD-2-07.



SHEAR KEY DETAIL



BEARING PAD LAYOUT

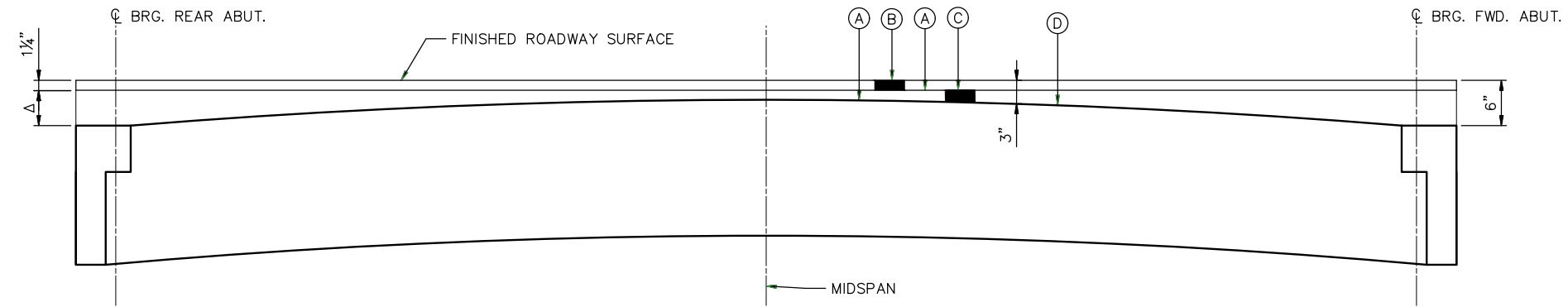
NOTES:

- | | |
|--------------------------|----------------------------|
| 1. BEARING DESIGN LOADS: | EXPANSION OR FIXED BEARING |
| DEAD LOADS | 24.05 K |
| LIVE LOADS | 39.00 K |
| TOTAL DESIGN LOAD | 63.05 K |
- ELASTOMERIC BEARINGS: THE ELASTOMER SHALL HAVE A HARDNESS OF 50 DUROMETER. THE BEARINGS WERE DESIGNED IN ACCORDANCE WITH SECTION 14.7.6 (METHOD A) OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE LONG-TERM COMPRESSION PROOF LOAD TEST (AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18.7.2.6) IS NOT REQUIRED.
 - PROVIDE CAST-IN-PLACE INSERTS ON THE OUTSIDE FACE OF EXTERIOR BOX BEAMS AT THE LOCATIONS SHOWN AND FURNISH No. 6 BARS (BENT PER THE DETAIL ON THIS SHEET) COMPATIBLE WITH THE INSERTS AND PROVIDING A PROJECTION OF 1'-3" BEYOND THE OUTSIDE FACE OF EXTERIOR BOX BEAM. INSTALL No. 6 BARS INTO INSERTS AFTER BOX BEAM ERECTION. EPOXY-COATED REINFORCING SHALL BE INCLUDED WITH ITEM 515 FOR PAYMENT.
 - BEARING AND BOX BEAM DETAILS ARE SIMILAR FOR THE NORTHBOUND AND SOUTHBOUND BRIDGE.
 - FOR ADDITIONAL PRESTRESSED BOX BEAM DETAILS, SEE STD. DWG. PSBD-2-07.
 - FOR BEAM LAYOUT PLAN, SEE SHEET 12/24.

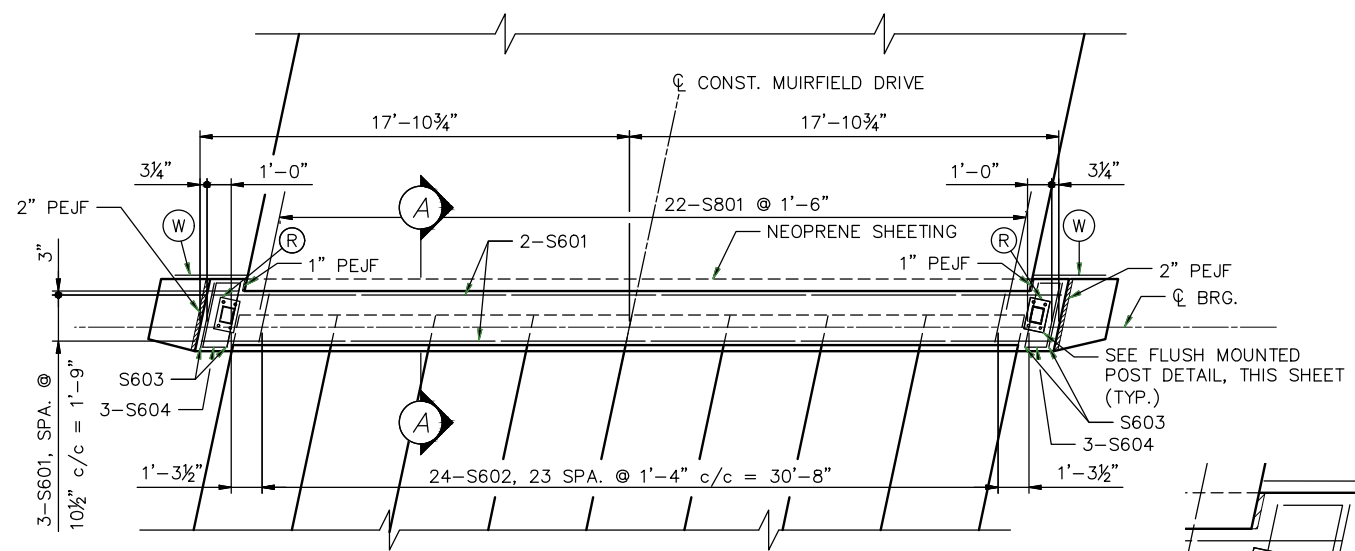
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Δ - SOUTHBOUND BRIDGE:
 BEAM ENDS: 4¾"
 QUARTER POINTS: 1¾"
 MIDSPAN: 2¾"

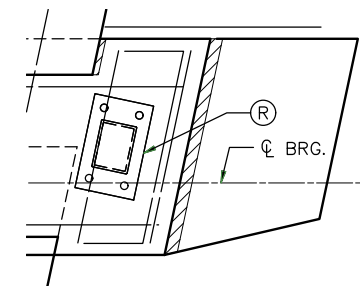
NORTHBOUND BRIDGE:
 BEAM ENDS: 4¾"
 QUARTER POINTS: 1¾"
 MIDSPAN: 2¾"



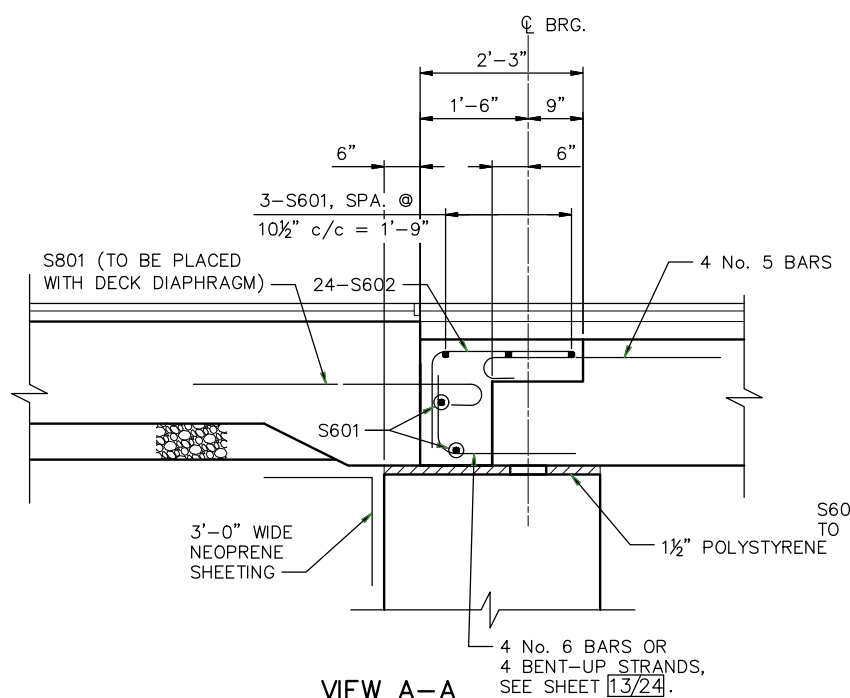
ASPHALT THICKNESS DIAGRAM



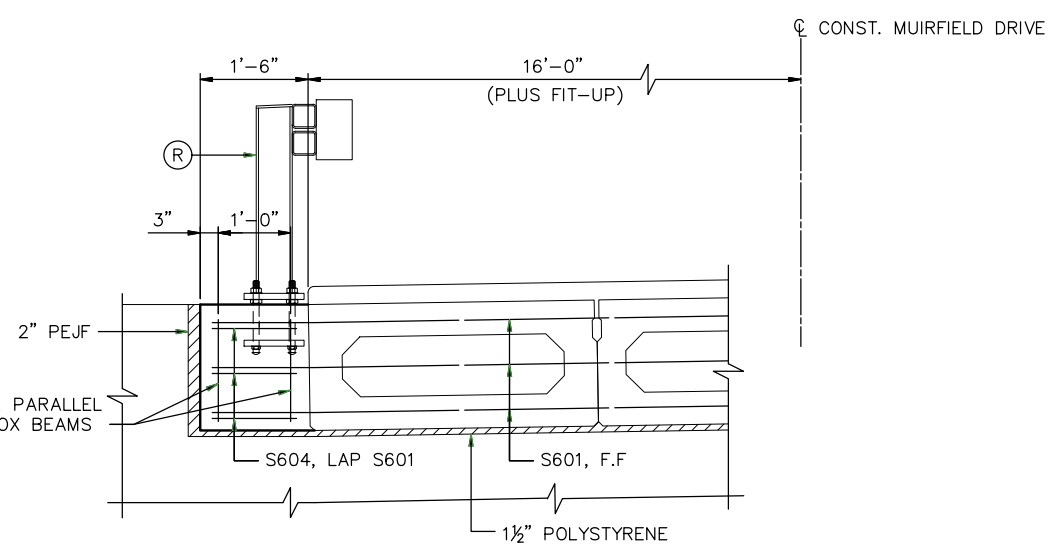
END DIAPHRAGM PLAN
 REAR ABUT. SHOWN, FWD. ABUT. SIMILAR



FLUSH MOUNTED POST DETAIL



VIEW A-A



END DIAPHRAGM DETAILS

LOCATION		CL BRG. R.A.	0.25 SPAN	0.50 SPAN	0.75 SPAN	CL BRG. F.A.	
LEFT EDGE OF DECK	16.00' LT	STATION	13+38.60	13+54.97	13+71.35	13+87.72	14+04.10
		ELEVATION	905.25	905.17	905.12	905.12	905.16
PROFILE GRADE	0.00'	STATION	13+42.00	13+58.38	13+74.75	13+91.13	14+07.50
		ELEVATION	905.49	905.41	905.38	905.39	905.44
RIGHT EDGE OF DECK	16.00' RT	STATION	13+45.40	13+61.78	13+78.15	13+94.53	14+10.90
		ELEVATION	905.21	905.14	905.12	905.13	905.19

LOCATION		CL BRG. R.A.	0.25 SPAN	0.50 SPAN	0.75 SPAN	CL BRG. F.A.	
LEFT EDGE OF DECK	16.00' LT	STATION	53+47.33	53+63.70	53+80.08	53+96.45	54+12.83
		ELEVATION	904.37	904.46	904.59	904.77	904.99
PROFILE GRADE	0.00'	STATION	53+50.73	53+67.11	53+83.48	53+99.86	54+16.23
		ELEVATION	904.64	904.74	904.89	905.07	905.30
RIGHT EDGE OF DECK	16.00' RT	STATION	53+54.13	53+70.51	53+86.88	54+03.26	54+19.63
		ELEVATION	904.40	904.51	904.66	904.85	905.09

CAMBER (FOR SOUTHBOUND & NORTHBOUND):

1. ESTIMATED CAMBER AT DAY 0 (D₀) IS 1 1/16 INCHES.
2. ESTIMATED CAMBER AT DAY 30 (D₃₀) IS 3 7/16 INCHES.
3. DEFLECTION DUE TO REMAINING DEAD LOAD (E.G., WEARING SURFACE, RAILING, ETC) IS 3/8 INCHES.
4. THE BEAM SEAT ELEVATIONS ASSUME ESTIMATED CAMBER D₃₀.

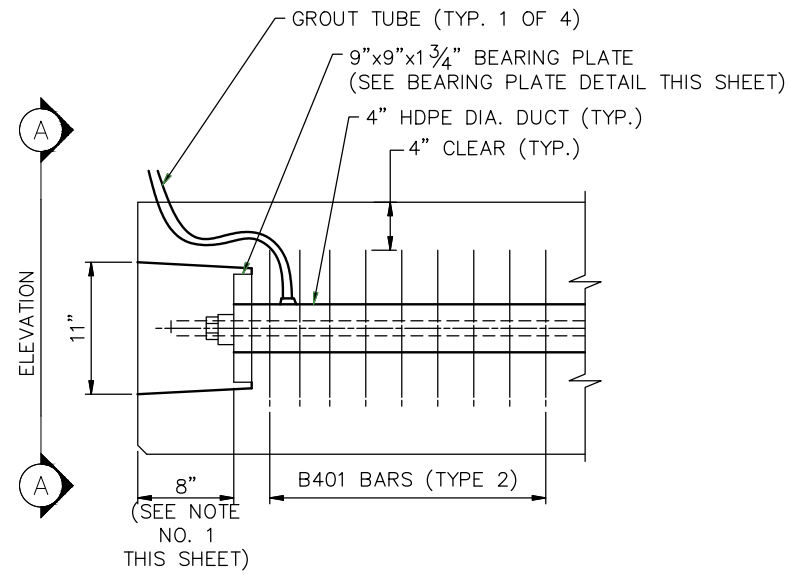
LEGEND

- (A) - ITEM 407 - NON-TRACKING TACK COAT
- (B) - ITEM 441 - 1¼" SURFACE COURSE, TYPE 1, (448), PG64-22, MT
- (C) - ITEM 441 - 1¾" INTERMEDIATE COURSE, TYPE 2, (448), PG64-22, MT
- (D) - ITEM 512 - TYPE 3 WATERPROOFING
- (R) - FLUSH MOUNTED POST ON INTEGRAL BACKWALL AS PER STD. DWG. TST-1-99
- (W) - 3'-0" WIDE VERTICAL NEOPRENE SHEETING, CENTERED ON JOINT, EXTENDING FROM 3" BELOW GROUND LINE BEHIND WINGWALL TO 1'-6" BELOW BEAM SEAT.

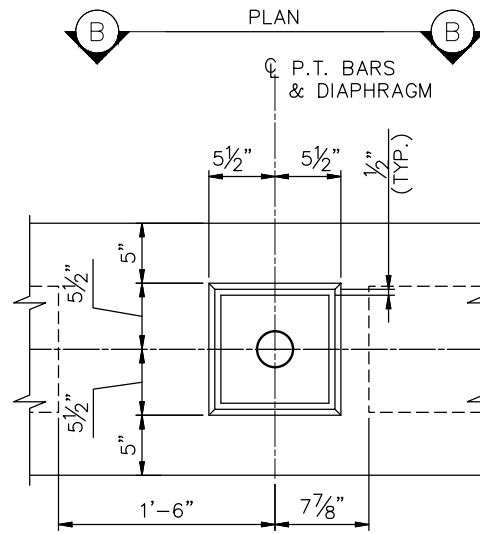
NOTES:

1. ALL REINFORCING STEEL FOR BOX BEAMS SHALL BE EPOXY COATED.
2. END DIAPHRAGM DETAILS ARE SIMILAR FOR THE NORTHBOUND AND SOUTHBOUND BRIDGE.
3. FOR PRESTRESSED BOX BEAM DETAILS, SEE SHEET 13/24.

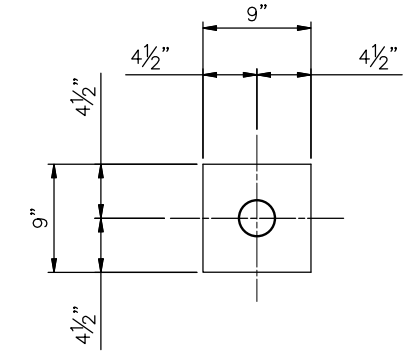
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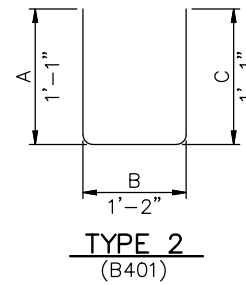
DETAIL A CB21-48 FASCIA BEAM



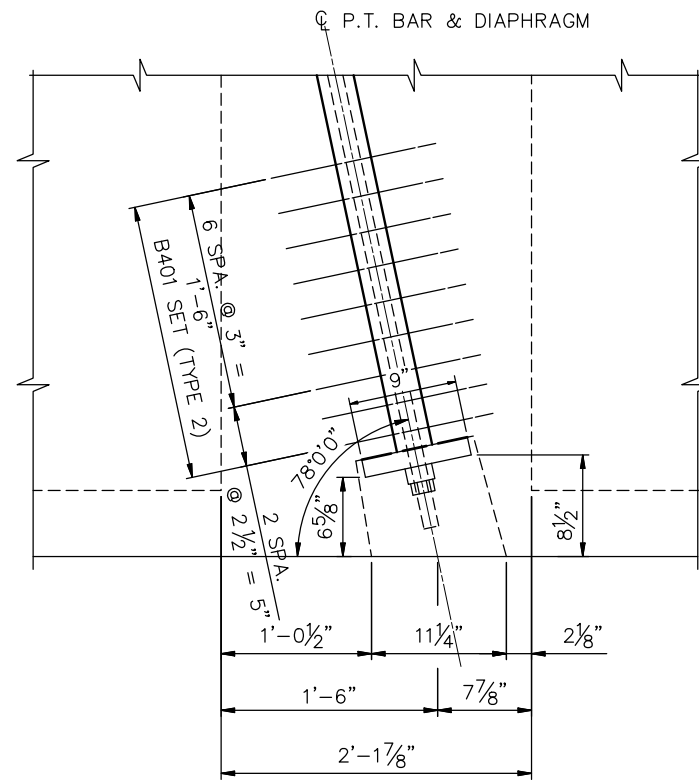
ELEVATION A CB21-48 FASCIA BEAM



BEARING PLATE DETAIL
(1 3/4" THICK)



TYPE 2
(B401)



PLAN B POST TENSIONING ANCHORAGE

NOTES

1. FILL ACCESS POCKETS WITH NON-SHRINK GROUT AND MATCH COLOR WITH EXTERIOR OF BOX BEAMS.
2. FOR SHEAR KEY DETAIL SEE SHEET 13/24.
3. HOLE SIZE AND CONFIGURATION AS PER MANUFACTURER'S RECOMMENDATION.
4. B401 BARS INCLUDED WITH PRESTRESSED COMPOSITE BOX BEAMS FOR PAYMENT.
5. POST-TENSIONING MUST BE REVIEWED AND ACCEPTED BY ENGINEER, PRIOR TO CUTTING DOWEL BARS AND GROUTING THE POST-TENSIONING DUCTS.
6. SHEAR KEY GROUTING MUST REACH A COMPRESSIVE STRENGTH OF 4,000 PSI PRIOR TO FINAL POST-TENSIONING.

U:\Accounts\DL\BIN\DU\BIN19002 - Muirfield Drive At North Fork Indian Run\DESIGN\CT\ProjectData\FRA_MURFD_0223\Design\Structures\Sheets\FRA_MURFD_0223_SM001.dwg 10/20/2020 12:06:23 PM Craig Karagory

DESIGN AGENCY
PENNONI
5202 BETHEL REED PARK, SUITE 200
COLUMBUS, OHIO 43220

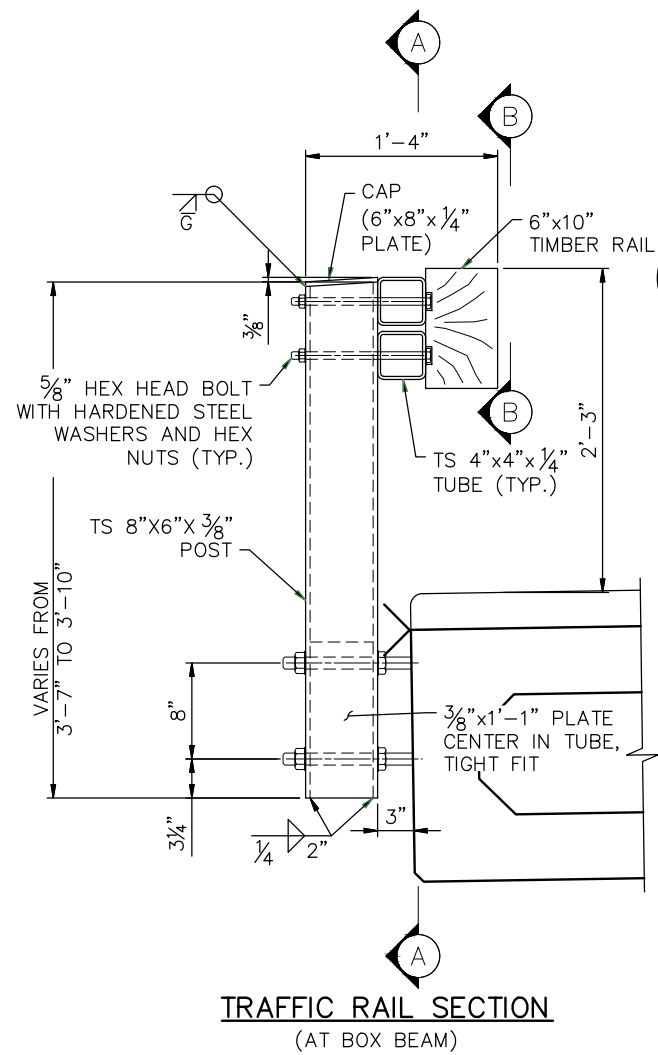
REVIEWED DATE
DWJ 07/13/20
STRUCTURE FILE NUMBER
2568749L - 2568757R

DRAWN CHECKED
CJK REVISED
ARA

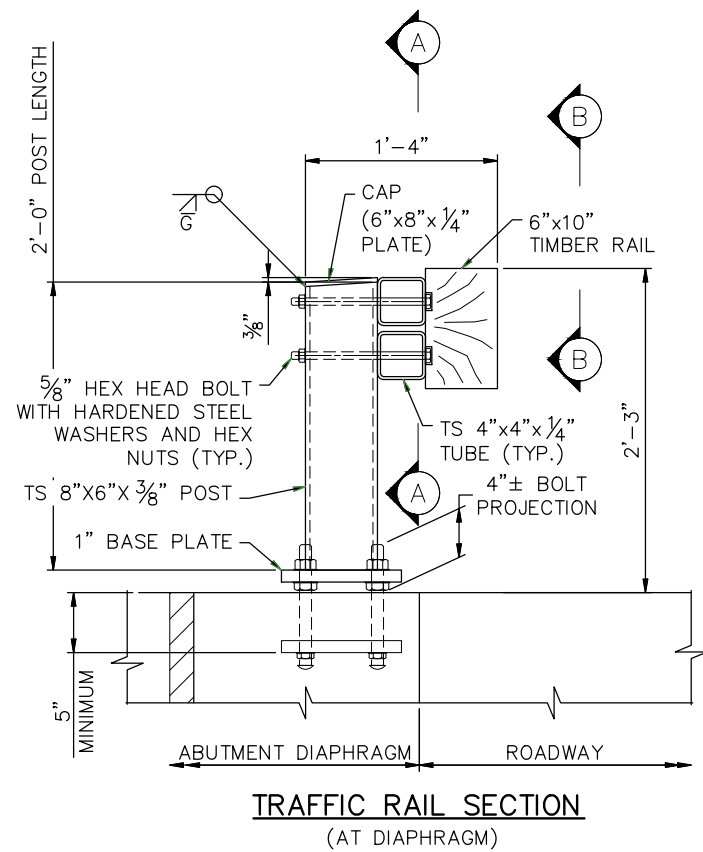
POST-TENSIONING DETAILS
BRIDGE NO. FRA-MURFD-0223LR
MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN

MUIRFIELD DRIVE

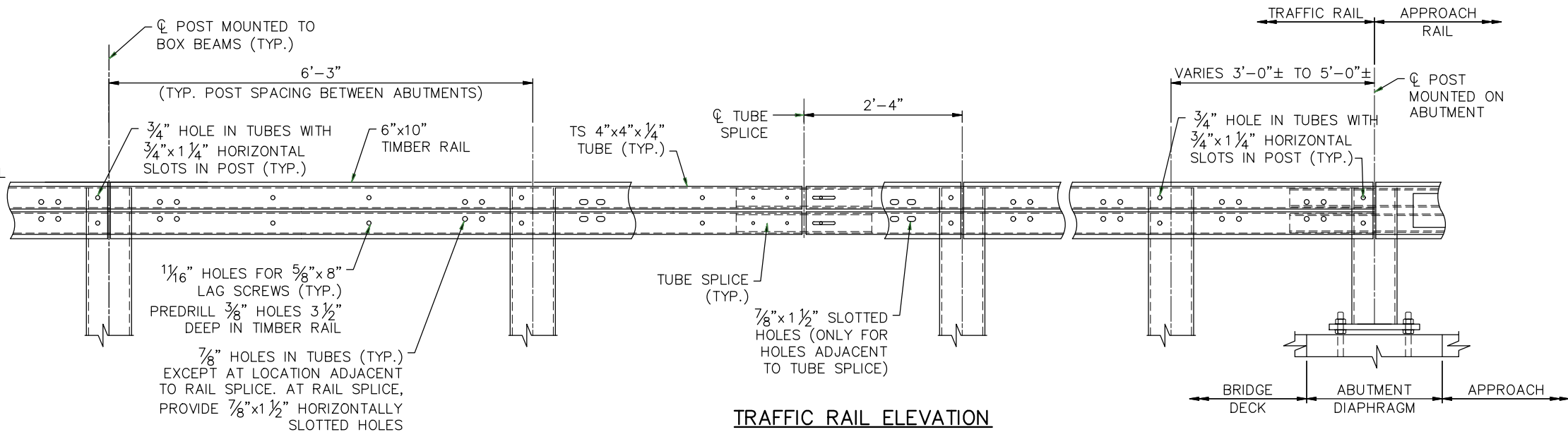
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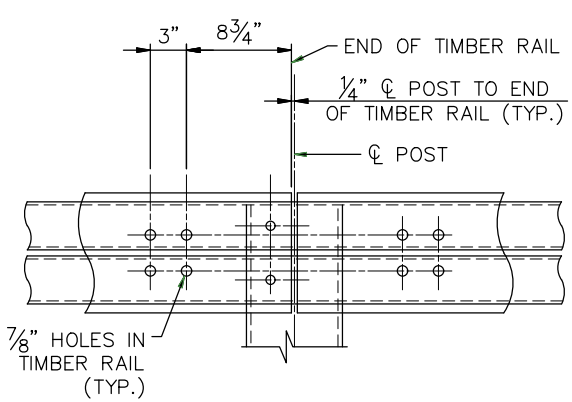
TRAFFIC RAIL SECTION (AT BOX BEAM)



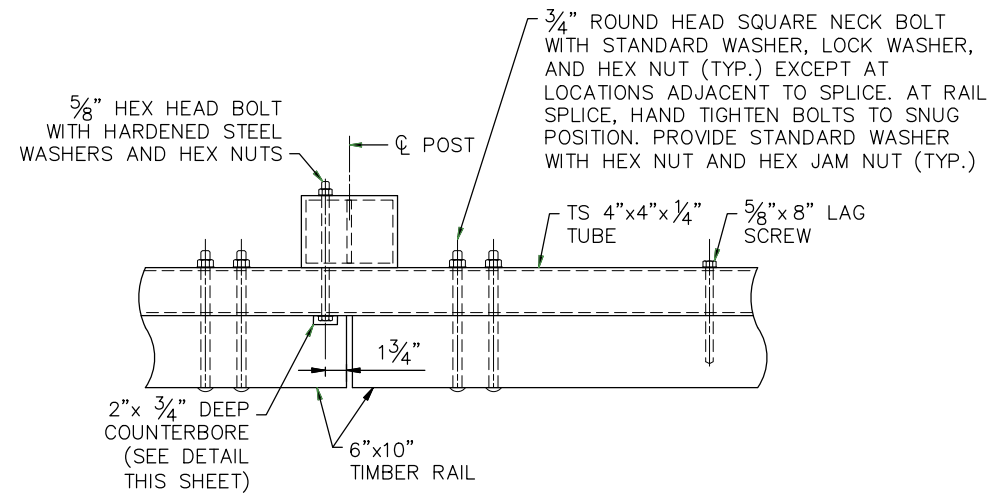
TRAFFIC RAIL SECTION (AT DIAPHRAGM)



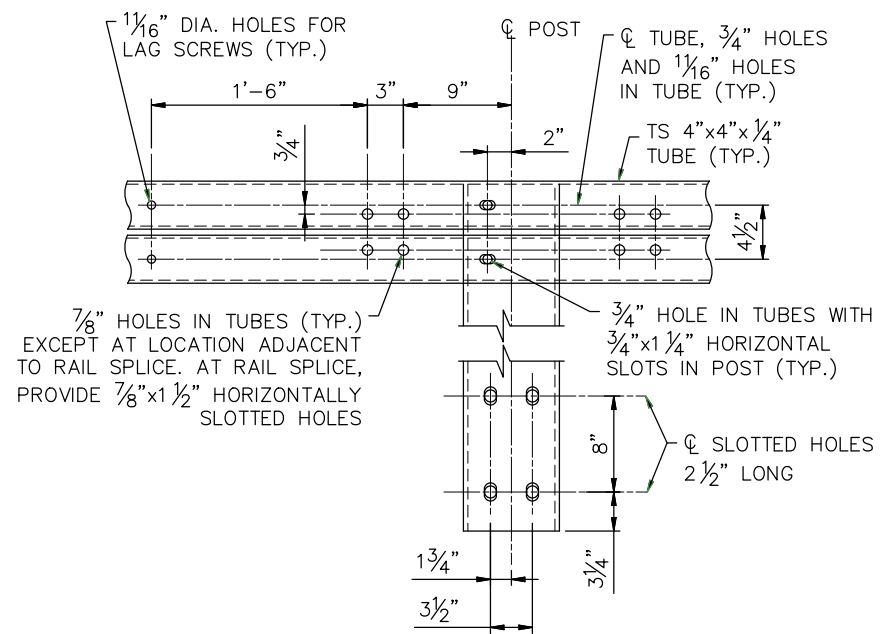
TRAFFIC RAIL ELEVATION



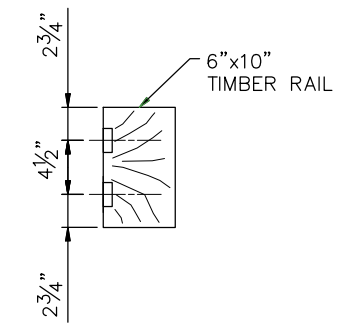
VIEW B-B



PLAN VIEW AT POST



VIEW A-A

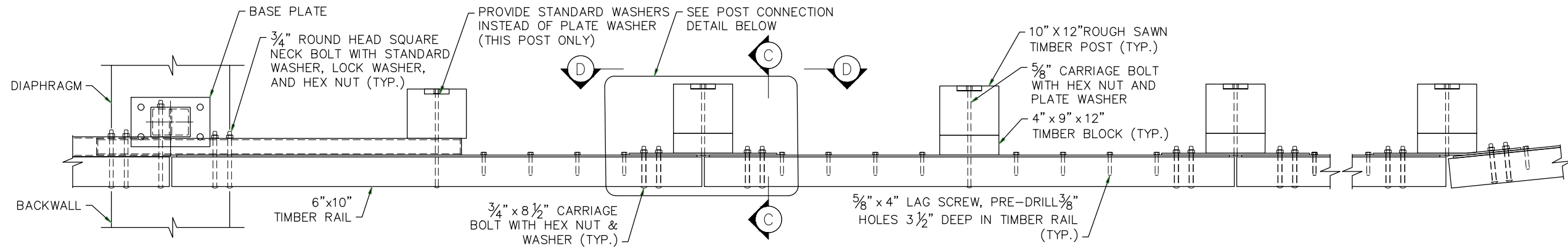


COUNTERBORE DETAIL

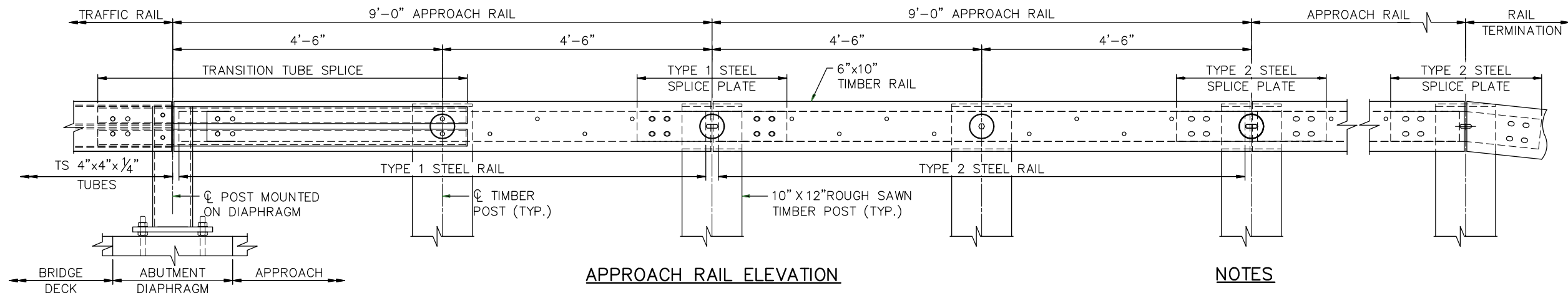
NOTES

1. FOR TUBE SPLICE DETAILS, SEE SHEET 19/24.
2. FOR APPROACH RAIL DETAILS, SEE SHEET 17/24.
3. FOR BASE PLATE DETAILS, SEE SHEET 20/24.

DESIGNED	CJK	CHECKED	CTL
DRAWN	CJK	REVISED	
REVIEWED	DWJ	STRUCTURE FILE NUMBER	2568749L - 2568757R
DATE	07/13/20	DESIGNAGENCY	PENNONI 5202 BETHEL REED PARK, SUITE 200 COLUMBUS, OHIO 43220
TRAFFIC RAIL DETAILS			
BRIDGE NO. FRA-MURFD-0223LR			
MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN			
MUIRFIELD DRIVE			
			16 / 24
			37 45



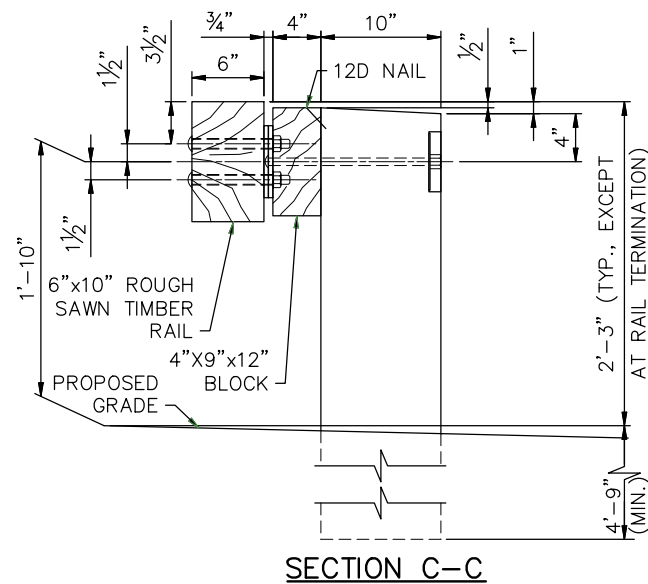
APPROACH RAIL PLAN



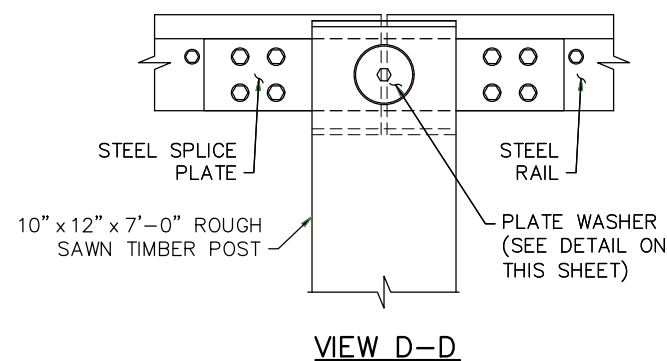
APPROACH RAIL ELEVATION

NOTES

1. FOR STEEL RAIL DETAILS, SEE SHEET [19/24].
2. FOR RAIL TERMINATION DETAILS, SEE SHEET [18/24].
3. FOR TRANSITION TUBE SPLICE DETAILS, SEE SHEET [20/24].



SECTION C-C



VIEW D-D

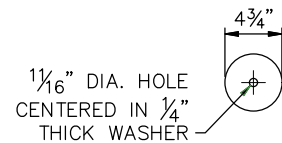
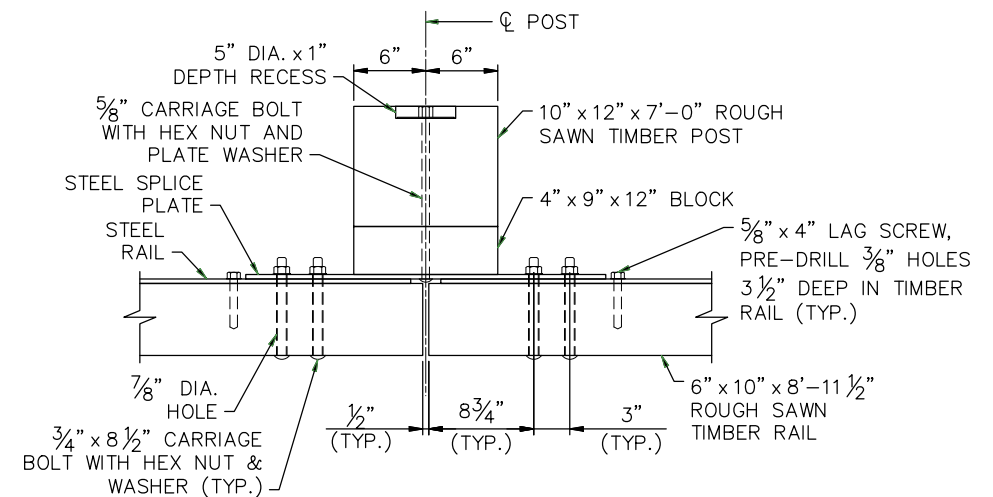
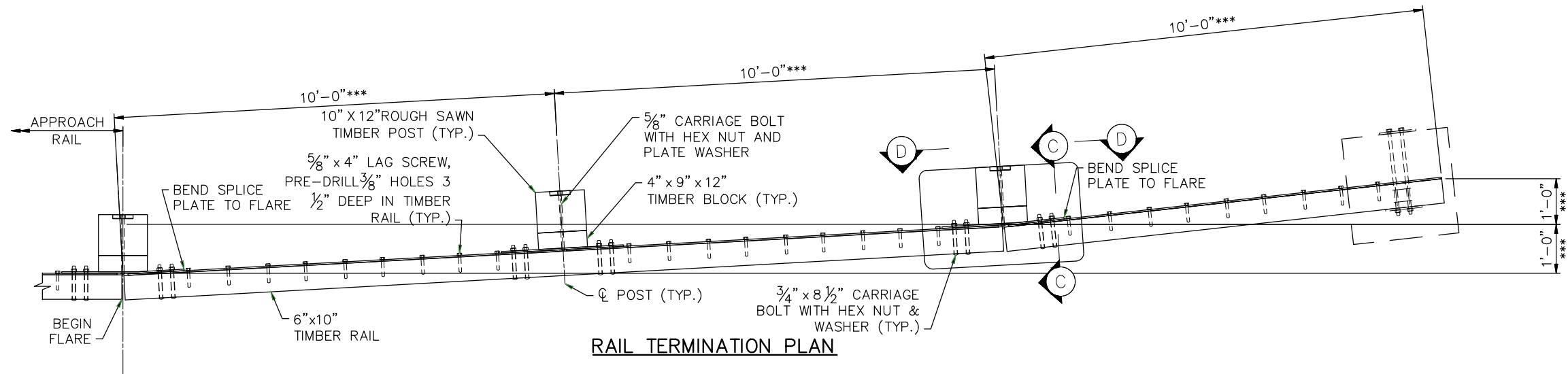


PLATE WASHER

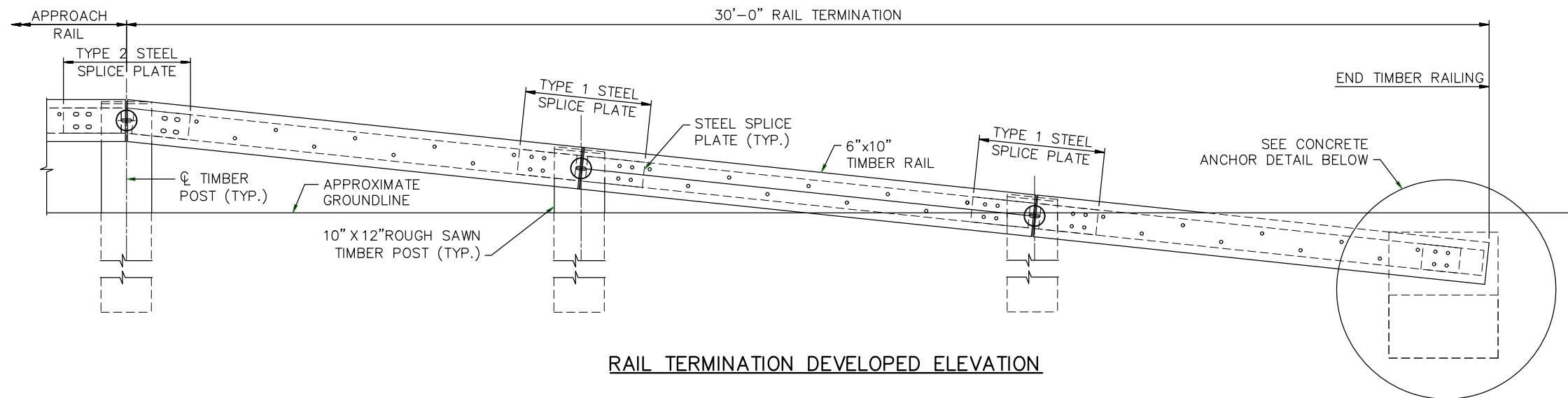


POST CONNECTION DETAIL

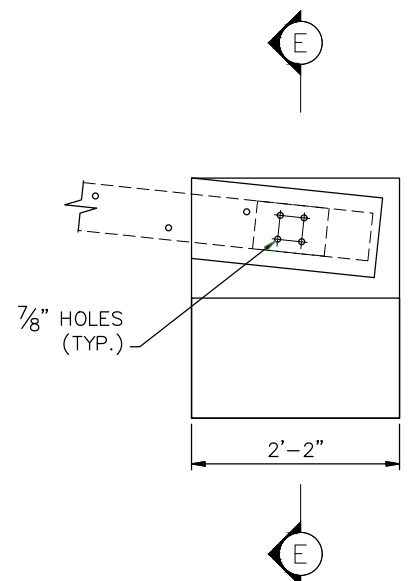
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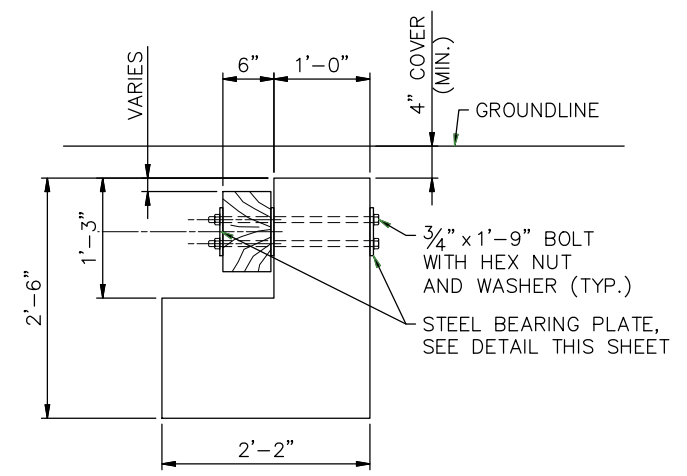
RAIL TERMINATION PLAN



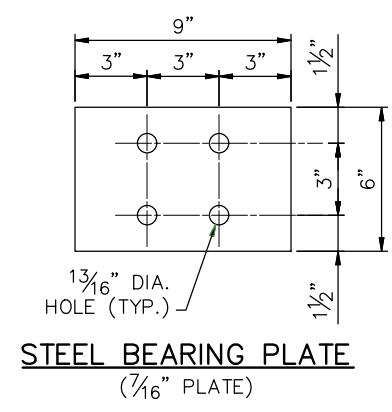
RAIL TERMINATION DEVELOPED ELEVATION



CONCRETE ANCHOR DETAIL



SECTION E-E



**STEEL BEARING PLATE
(7/16" PLATE)**

LEGEND

*** = MEASURED AT INTERSECTION OF ϕ POST AND BACK OF STEEL RAIL

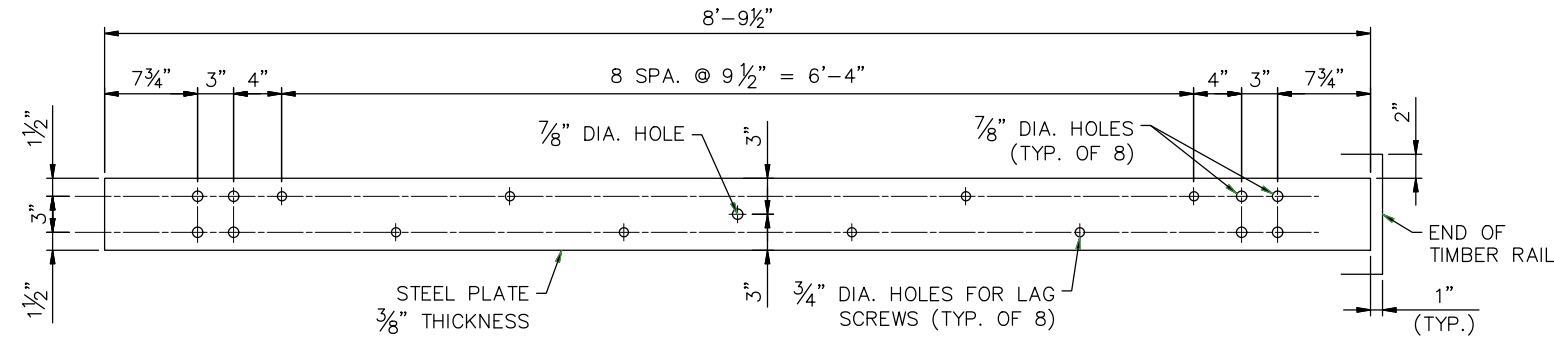
NOTES

1. FOR SECTION C-C AND VIEW D-D, SEE SHEET 17/24.
2. FOR STEEL RAIL DETAILS, SEE SHEET 19/24.

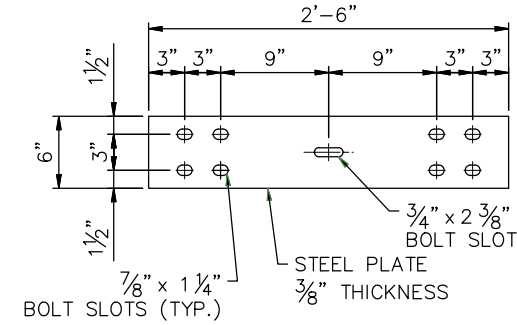
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DESIGN AGENCY PENNSYLVANIA 5202 BETHEL REED PARK, SUITE 200 COLUMBUS, OHIO 43220	
DESIGNED CJK	DATE 07/13/20
DRAWN CJK	REVIEWED 2568749L - 2568757R
CHECKED CTL	STRUCTURE FILE NUMBER
RAILING TERMINATION DETAILS BRIDGE NO. FRA-MURFD-0223LR MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN	
MUIRFIELD DRIVE	
18 / 24	
39 45	

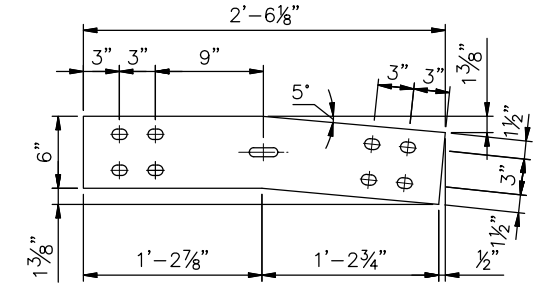
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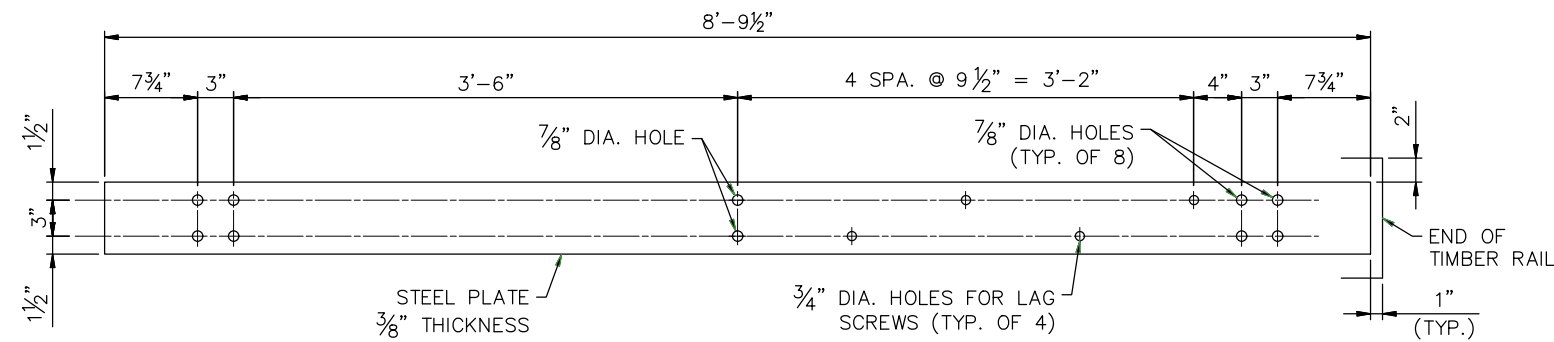
TYPE 1 STEEL RAIL



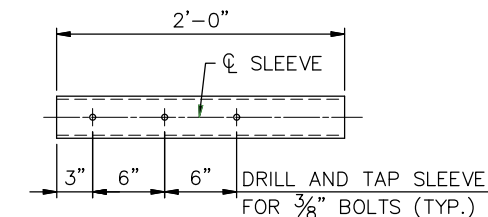
TYPE 1 STEEL SPLICE PLATE
BEND TO FLARE AT RAIL TERMINATION



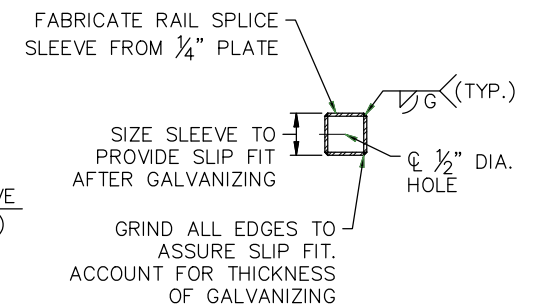
TYPE 2 STEEL SPLICE PLATE
BEND TO FLARE AT RAIL TERMINATION
(SEE STEEL SPLICE PLATE DETAIL FOR CALLOUTS AND DIMENSIONS NOT SHOWN)



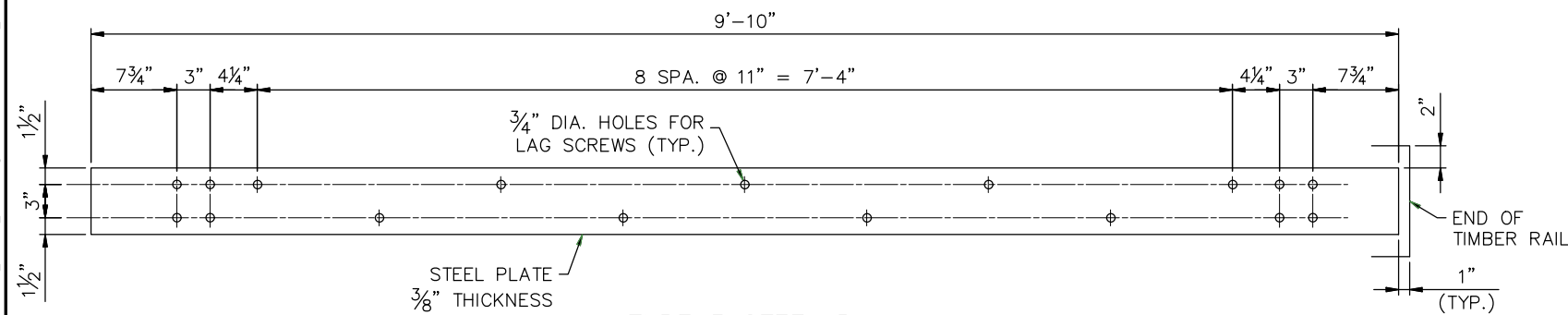
TYPE 2 STEEL RAIL



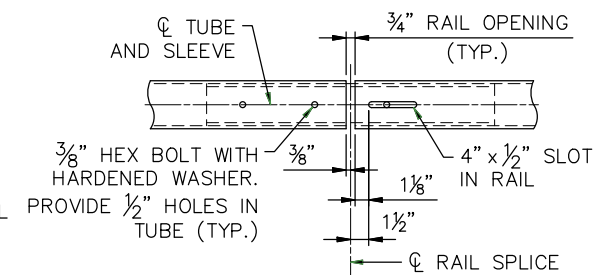
TUBE SPLICE SLEEVE DETAIL



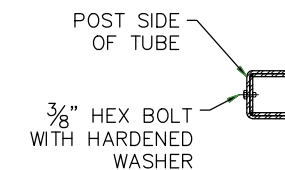
TUBE SPLICE SLEEVE SECTION



TYPE 3 STEEL RAIL



TUBE SPLICE DETAIL



TUBE SPLICE SECTION

DESIGN AGENCY
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5202 BETHEL REED PARK, SUITE 200
COLUMBUS, OHIO 43220

DATE
07/13/20
REVIEWED
DWJ
STRUCTURE FILE NUMBER
2568749L - 2568757R

DRAWN
CJK
REVIS

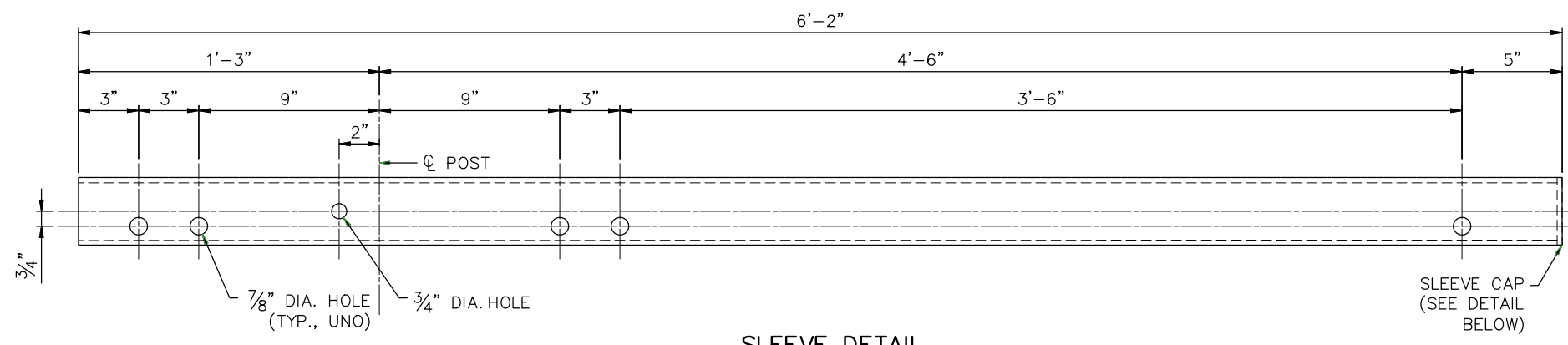
DESIGNED
CJK
CHECKED
CTL

RAILING DETAILS - 1
BRIDGE NO. FRA-MURFD-0223LR
MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN

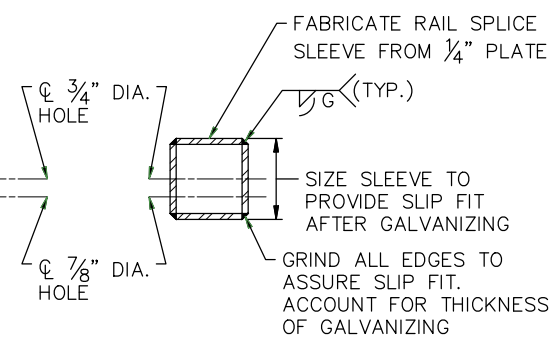
MUIRFIELD DRIVE

19 / 24

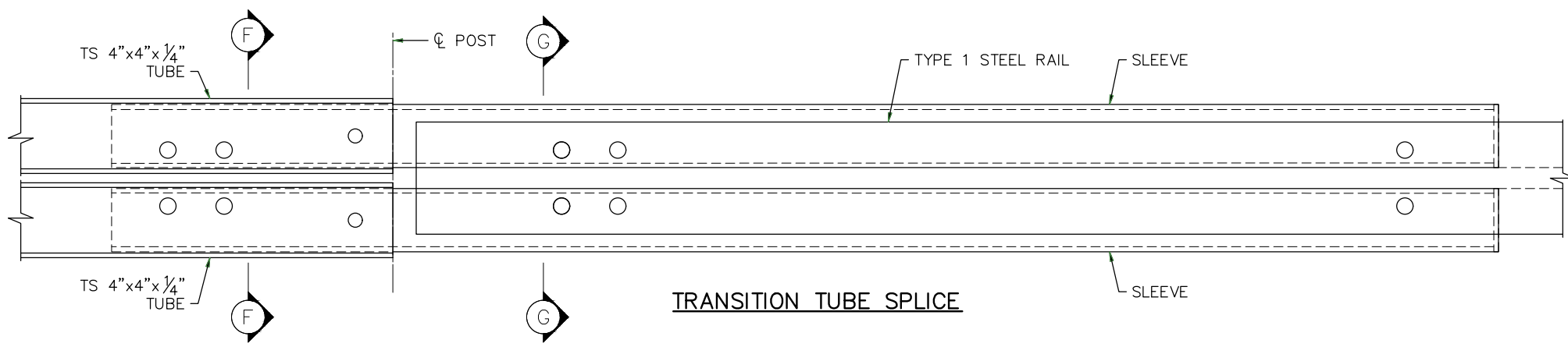
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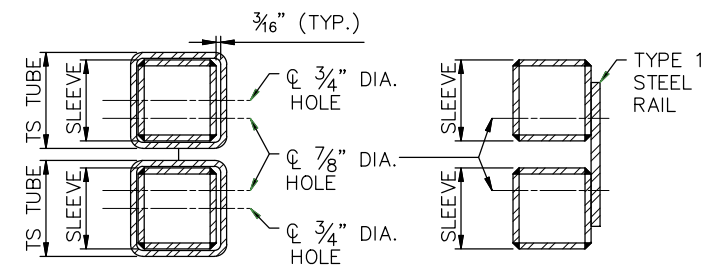
SLEEVE DETAIL



SLEEVE SECTION

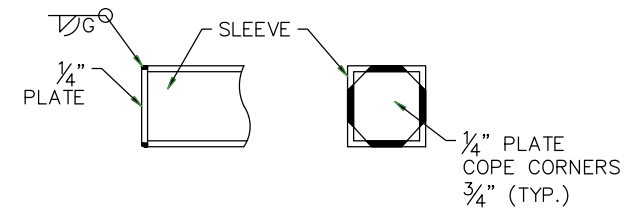


TRANSITION TUBE SPLICE

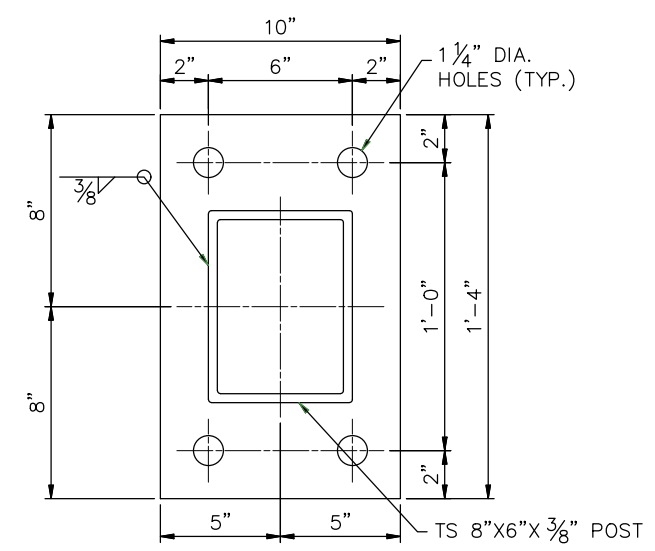


SECTION F-F

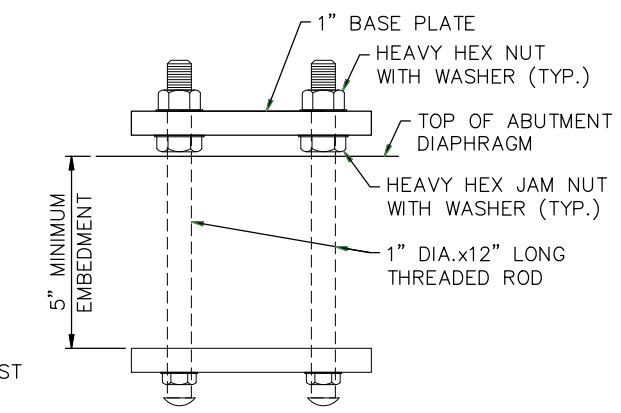
SECTION G-G



SLEEVE CAP DETAIL



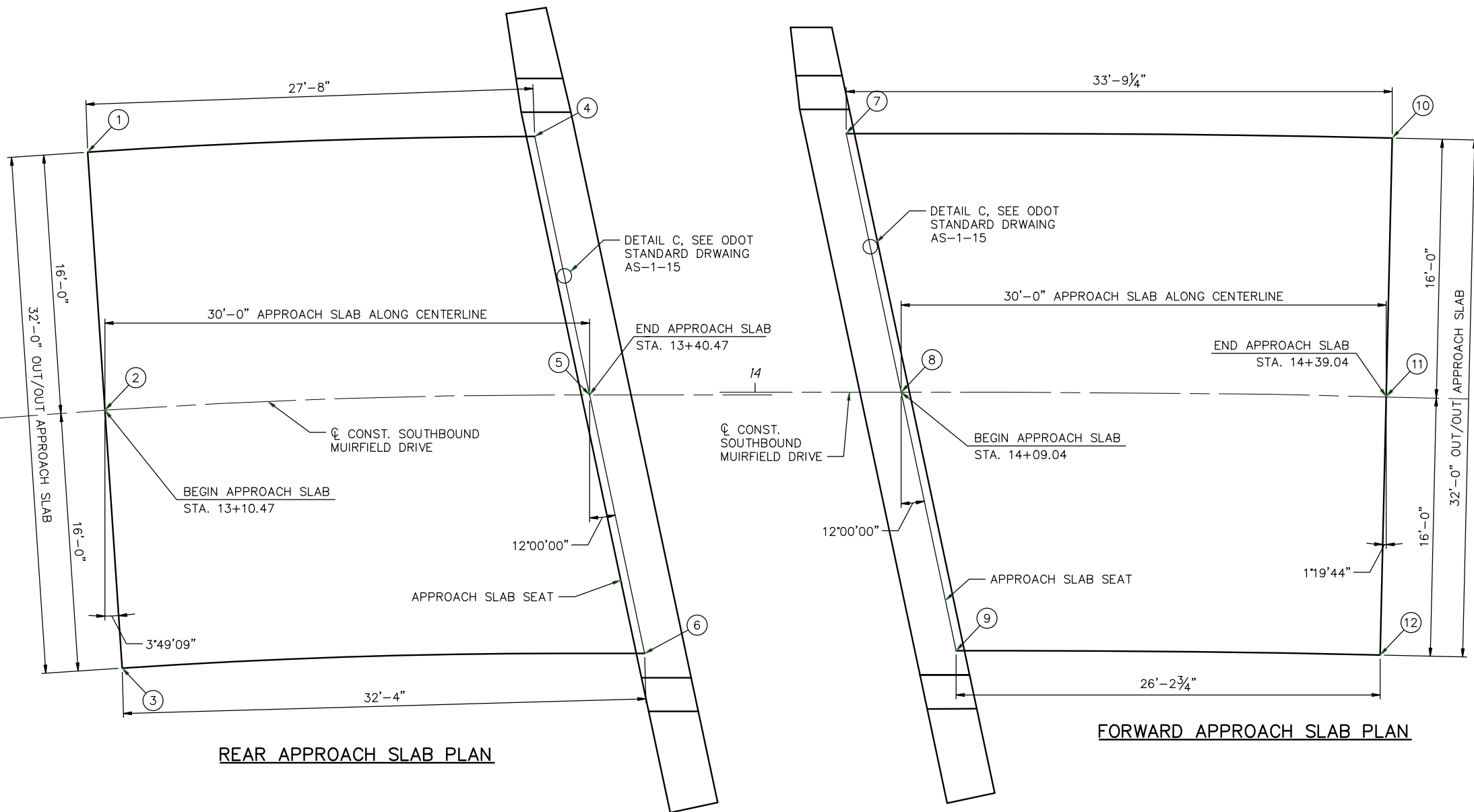
BASE PLATE



ABUTMENT DIAPHRAGM ANCHOR DETAIL

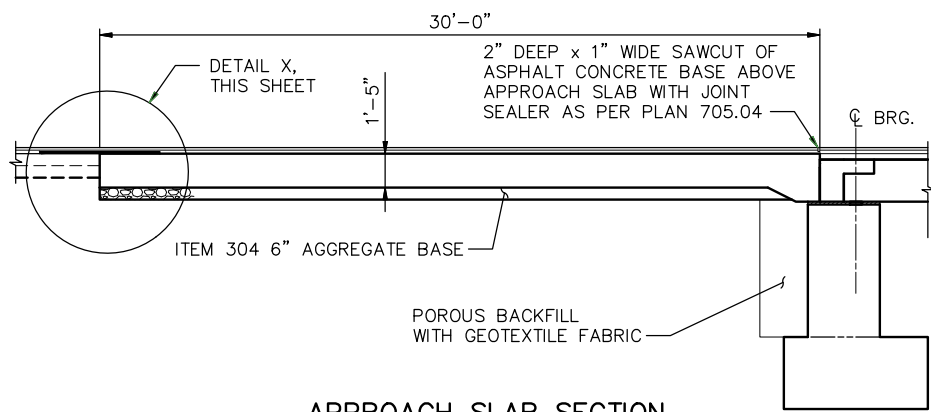
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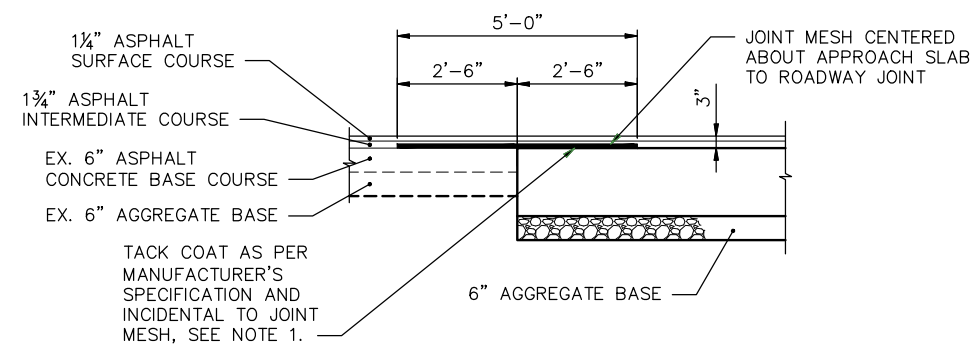


FINISHED APPROACH SLAB ELEVATIONS			
LOCATION	STATION	OFFSET	ELEVATION
①	13+10.47	16.00' LT.	905.49
②	13+10.47	0.00'	905.75
③	13+10.47	16.00' RT.	905.49
④	13+37.13	16.00' LT.	905.26
⑤	13+40.47	0.00'	905.50
⑥	13+43.87	16.00' RT.	905.22
⑦	14+05.64	16.00' LT.	905.17
⑧	14+09.04	0.00'	905.44
⑨	14+12.44	16.00' RT.	905.20
⑩	14+39.04	16.00' LT.	905.39
⑪	14+39.04	0.00'	905.65
⑫	14+39.04	16.00' RT.	905.39

NOTE: TOP OF APPROACH SLAB ELEVATIONS ARE 3" BELOW FINISHED APPROACH SLAB ELEVATIONS



APPROACH SLAB SECTION
(REAR ABUTMENT SHOWN,
FORWARD ABUTMENT ON OPPOSITE HAND)



DETAIL X

NOTES

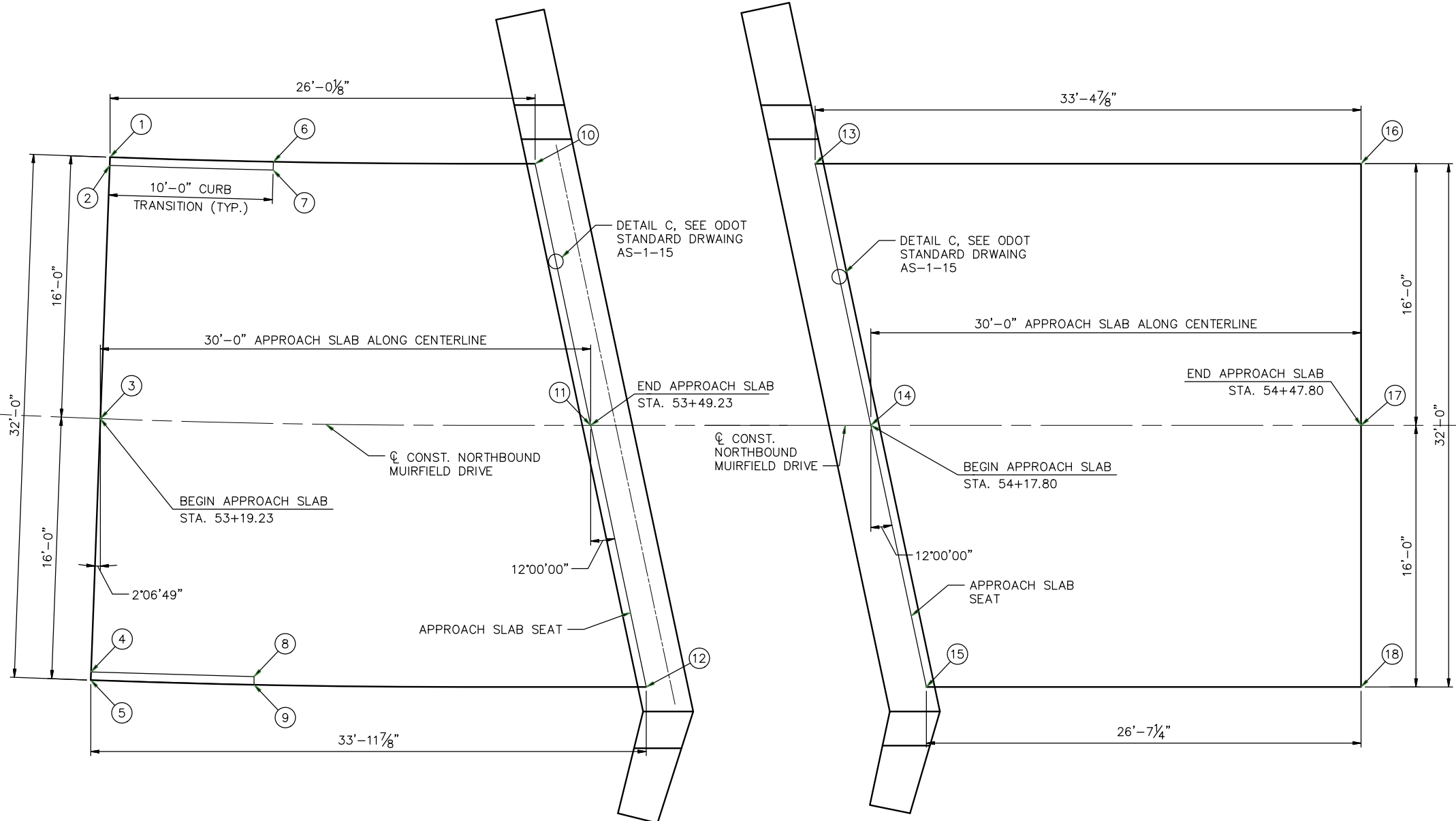
- REINFORCED MESH SHALL BE USED TO REINFORCE TRANSVERSE JOINTS. PLACE REINFORCING MESH ON PROPOSED SURFACE (AS SHOWN IN DETAIL X), 5.0' WIDE, ALONG LENGTHS SHOWN IN THE PLAN, CENTERED OVER JOINT CREATED. THE ENTIRE APPROACH SLAB AT THESE LOCATION SHALL BE OVERLAYED WITH 1 3/4" ASPHALT INTERMEDIATE COURSE, AND 1 1/4" ASPHALT SURFACE COURSE AFTER PLACEMENT OF THE REINFORCING MESH. THIS WORK SHALL BE PERFORMED ONLY AT THE LOCATIONS SHOWN IN DETAIL X. REINFORCING MATERIAL SHALL BE GLASGRID CG200 OR EQUIVALENT AND SHALL BE PLACED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND THIS NOTE. ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, TRAFFIC CONTROL AND INCIDENTALS NEEDED TO COMPLETE THE WORK DESCRIBED ABOVE SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR

ITEM 690 SPECIAL - REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINT CRACKS.

QUANTITY CARRIED TO ESTIMATED QUANTITIES:
32.00' x 5.00' / 9 = 17.78 SY (REAR APPROACH SLAB)
32.00' x 5.00' / 9 = 17.78 SY (FORWARD APPROACH SLAB)
TOTAL = 35.56 SY

36 SY CARRIED TO ESTIMATED QUANTITIES [5/24].
- THIS DRAWING PROVIDE DETAILS TO SUPPLEMENT THE STANDARD DRAWING. FOR APPROACH SLAB REINFORCING STEEL AND DETAILS NOT SHOWN SEE ODOT STANDARD DRAWING AS-1-15 AND AS-2-15.

U:\Accounts\DU\BIN\DU\BIN19002 - Muirfield Drive At North Fork Indian Run\DESIGN\CT\ProjectData\FRA_MURFD_0223_S\004.dwg 10/20/2020 12:11:36 PM Craig Karagory

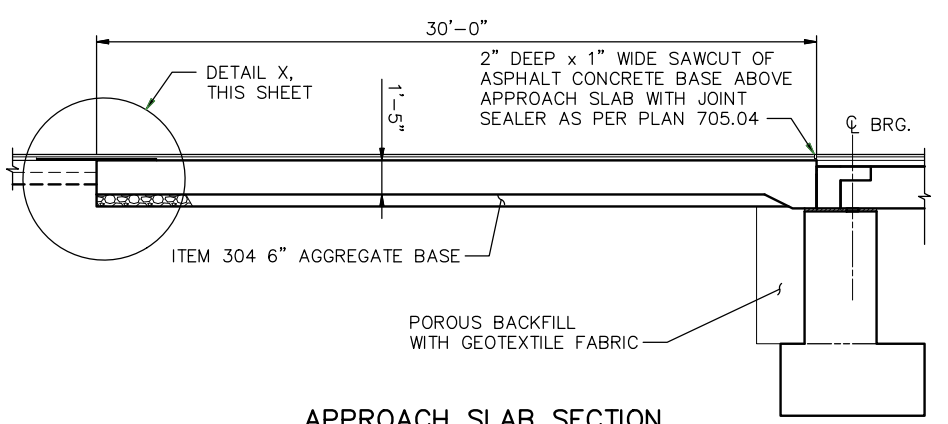


REAR APPROACH SLAB PLAN

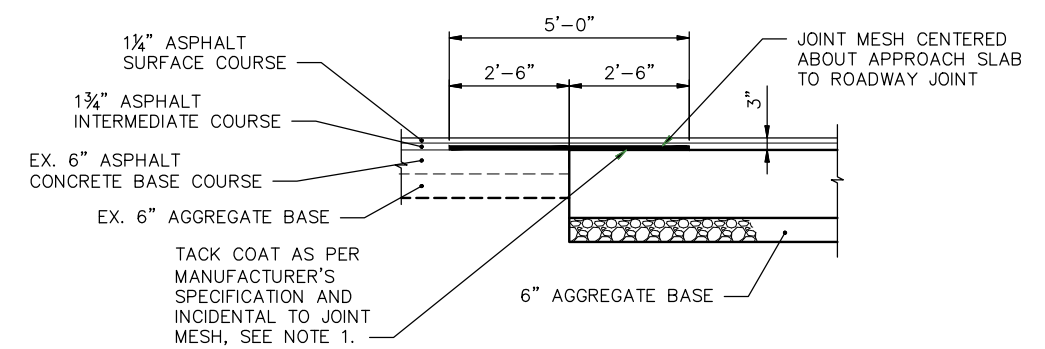
FORWARD APPROACH SLAB PLAN

FINISHED APPROACH SLAB ELEVATIONS			
LOCATION	STATION	OFFSET	ELEVATION
①	53+19.23	16.00' LT.	904.31
②	53+19.23	15.50' LT.	904.32
③	53+19.23	0.00'	904.57
④	53+19.23	15.50' RT.	904.32
⑤	53+19.23	16.00' RT.	904.31
⑥	53+29.50	16.00' LT.	904.32
⑦	53+29.50	15.50' LT.	904.33
⑧	53+28.96	15.50' RT.	904.32
⑨	53+28.97	16.00' RT.	904.31
⑩	53+45.83	16.00' LT.	904.36
⑪	53+49.23	0.00'	904.64
⑫	53+52.63	16.00' RT.	904.39
⑬	53+14.40	16.00' LT.	905.01
⑭	53+17.80	0.00'	905.32
⑮	53+21.20	16.00' RT.	905.11
⑯	53+47.80	16.00' LT.	905.59
⑰	53+47.80	0.00'	905.85
⑱	53+47.80	16.00' RT.	905.59

NOTE: TOP OF APPROACH SLAB ELEVATIONS ARE 3" BELOW FINISHED APPROACH SLAB ELEVATIONS



APPROACH SLAB SECTION
(REAR ABUTMENT SHOWN,
FORWARD ABUTMENT ON OPPOSITE HAND)



DETAIL X

NOTES

- REINFORCED MESH SHALL BE USED TO REINFORCE TRANSVERSE JOINTS. PLACE REINFORCING MESH ON PROPOSED SURFACE (AS SHOWN IN DETAIL X), 5.0' WIDE, ALONG LENGTHS SHOWN IN THE PLAN, CENTERED OVER JOINT CREATED. THE ENTIRE APPROACH SLAB AT THESE LOCATION SHALL BE OVERLAYED WITH 1 3/4" ASPHALT INTERMEDIATE COURSE, AND 1 1/4" ASPHALT SURFACE COURSE AFTER PLACEMENT OF THE REINFORCING MESH. THIS WORK SHALL BE PERFORMED ONLY AT THE LOCATIONS SHOWN IN DETAIL X. REINFORCING MATERIAL SHALL BE GLASGRID CG200 OR EQUIVALENT AND SHALL BE PLACED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND THIS NOTE. ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, TRAFFIC CONTROL AND INCIDENTALS NEEDED TO COMPLETE THE WORK DESCRIBED ABOVE SHALL BE INCLUDED FOR PAYMENT IN THE UNIT PRICE BID FOR
 - ITEM 690 SPECIAL - REINFORCED MESH FOR TRANSVERSE AND/OR LONGITUDINAL JOINT CRACKS.
- QUANTITY CARRIED TO ESTIMATED QUANTITIES:
 32.00' x 5.00' / 9 = 17.78 SY (REAR APPROACH SLAB)
 32.00' x 5.00' / 9 = 17.78 SY (FORWARD APPROACH SLAB)
 TOTAL = 35.56 SY
- 36 SY CARRIED TO ESTIMATED QUANTITIES **5/24**.
- THIS DRAWING PROVIDE DETAILS TO SUPPLEMENT THE STANDARD DRAWING. FOR APPROACH SLAB REINFORCING STEEL AND DETAILS NOT SHOWN SEE ODOT STANDARD DRAWING AS-1-15 AND AS-2-15.

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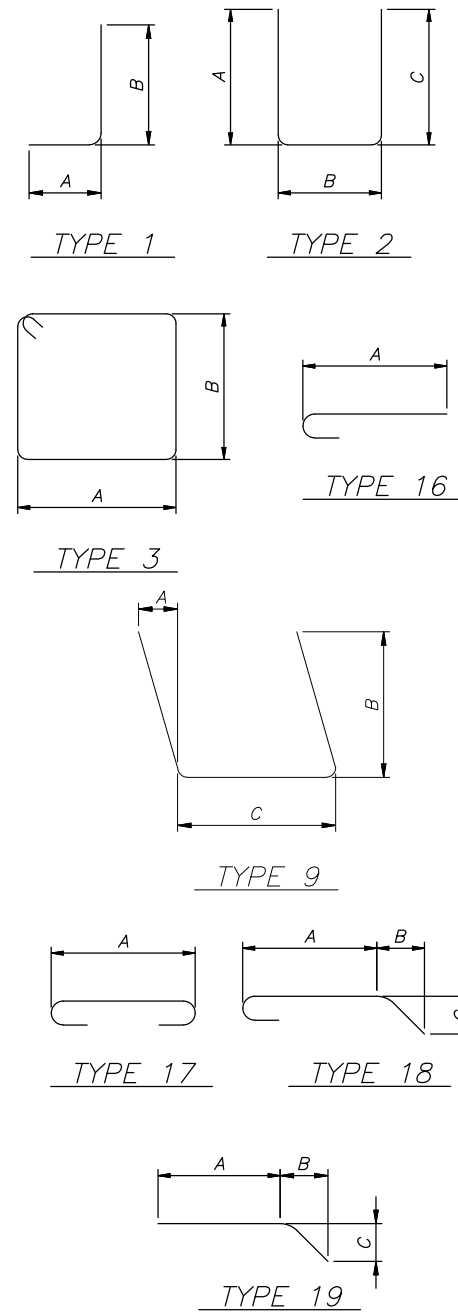
REINFORCING STEEL LIST

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS					SERIES INC.
	TOTAL				A	B	C	D	E	
SOUTHBOUND ABUTMENTS										
A501	80	26'-5"	2204	STR						
A502	32	35'-9"	1193	STR						
A503	34	10'-6"	372	STR						
A504	2	9'-0"	19	STR						
A505	1	4'-7"	5	STR						
A506	1	5'-2"	5	STR						
A507	1	3'-1"	3	STR						
A508	1	3'-8"	4	STR						
A509	1	8'-1"	8	19	6'-5"	1'-6"	0'-10"			
A510	1	8'-9"	9	19	7'-0"	1'-7"	0'-10"			
A511	6	22'-7"	141	2	10'-1"	2'-8"	10'-1"			
	1	15'-11"			6'-9"	2'-8"	6'-9"			
A512	SER OF	TO	118	2	TO	TO	TO			7"
	6	21'-9"			9'-8"	2'-8"	9'-8"			
A513	19	12'-9"	253	2	5'-2"	2'-8"	5'-2"			
A514	18	9'-4"	175	19	6'-2"	3'-2"	0'-2"			
A515	2	6'-0"	13	STR						
A516	2	5'-5"	11	STR						
A517	1	6'-0"	6	19	3'-9"	2'-3"	0'-4"			
A518	1	5'-5"	6	19	3'-9"	1'-8"	0'-3"			
	1	21'-0"			9'-6"	2'-3"	9'-6"			
A519	SER OF	TO	112	2	TO	TO	TO			1.5"
	5	22'-0"			10'-0"	2'-3"	10'-0"			
A520	3	22'-6"	70	2	10'-1"	2'-7"	10'-1"			
A521	8	12'-5"	104	2	5'-2"	2'-4"	5'-2"			
	1	21'-1"			9'-3"	2'-10"	9'-3"			
A522	SER OF	TO	159	2	TO	TO	TO			1.5"
	7	22'-7"			10'-0"	2'-10"	10'-0"			
A523	11	7'-6"	86	STR						
A524	2	7'-0"	15	STR						
A525	1	7'-7"	8	19	5'-10"	1'-9"	0'-3"			
A526	1	7'-0"	7	19	5'-3"	1'-9"	0'-3"			
A527	9	7'-6"	70	19	4'-11"	2'-7"	0'-3"			
	1	12'-3"			5'-2"	2'-2"	5'-2"			
A528	SER OF	TO	78	2	TO	TO	TO			1.25"
	6	12'-9"			5'-2"	2'-8"	5'-2"			
	1	20'-11"			9'-6"	2'-2"	9'-6"			
A529	SER OF	TO	67	2	TO	TO	TO			2.5"
	3	22'-0"			9'-11"	2'-5"	9'-11"			
	1	22'-1"			10'-0"	2'-4"	10'-0"			
A530	SER OF	TO	69	2	TO	TO	TO			1.5"
	3	22'-4"			10'-0"	2'-7"	10'-0"			
A531	2	4'-5"	9	STR						
A532	2	4'-7"	10	STR						
A533	1	4'-6"	5	19	2'-11"	1'-7"	0'-4"			
A534	1	4'-8"	5	19	3'-0"	1'-8"	0'-3"			
A601	102	10'-0"	1532	17	8'-8"					
A602	74	15'-4"	1704	2	6'-6"	2'-8"	6'-6"			
A603	74	17'-10"	1982	2	7'-9"	2'-8"	7'-9"			
A801	136	10'-6"	3813	17	8'-8"					
A802	8	35'-9"	764	STR						
		TOTAL	15214	LBS						

REINFORCING STEEL LIST

MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS					SERIES INC.
	TOTAL				A	B	C	D	E	
SOUTHBOUND SUPERSTRUCTURE										
S601	10	35'-5"	532	STR						
S602	48	3'-2"	228	1	1'-11"	1'-5"				
S603	8	7'-8"	92	3	2'-8"	1'-5"				
S603	8	7'-8"	92	3	2'-8"	1'-5"				
S604	12	4'-9"	86	9	0'-2"	1'-1"	2'-8"			
S801	44	5'-11"	696	16	5'-0"					
		TOTAL	1726	LBS						

BENDING DIAGRAMS



REINFORCING STEEL NOTES

- SERIES BARS - EACH BAR VARIES BY TABULATED AMOUNT.
- ALL DIMENSIONS ARE OUT TO OUT.
- TYPE 'STR' INDICATES A STRAIGHT BAR.
- THE BAR SIZE NUMBER IS INDICATED IN THE 'MARK' COLUMNS. THE FIRST ONE OR TWO DIGITS OF EACH MARK INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A501 IS A #5 BAR SIZE AND P1101 IS A #11 BAR SIZE.
- ALL REINFORCING STEEL SHALL BE EPOXY COATED UNLESS NOTED OTHERWISE.

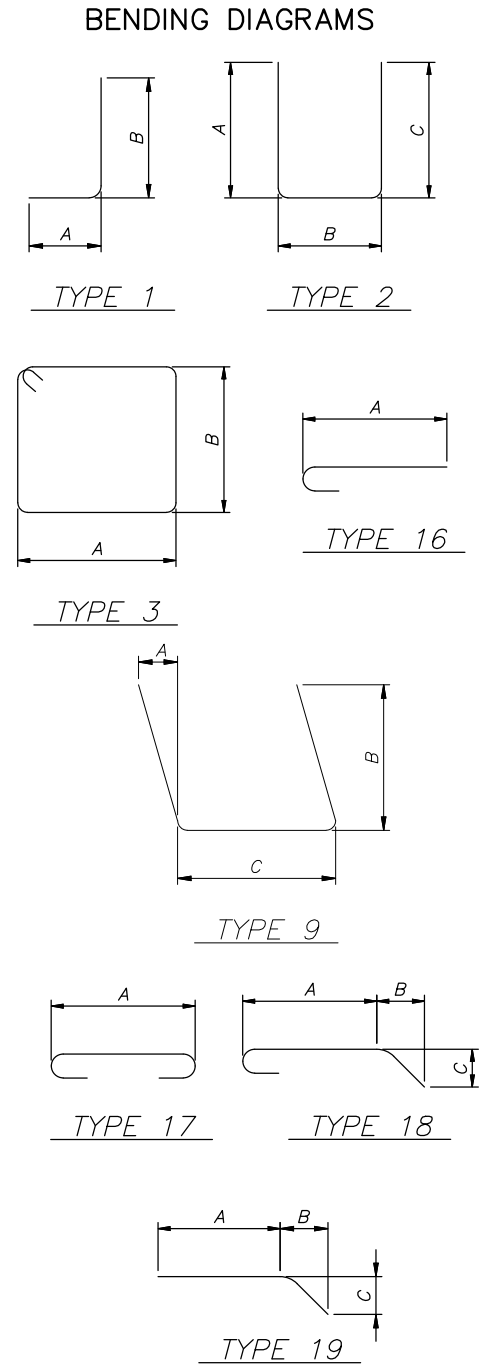
DESIGN AGENCY: PENNONI ASSOCIATES, INC. 5202 BETHEL REED PARK, SUITE 200 COLUMBUS, OHIO 43220
 DATE: 07/13/20
 REVIEWED: DWJ
 DRAWN: CJK
 CHECKED: ARA
 STRUCTURE FILE NUMBER: 2568749L - 2568757R
REINFORCING STEEL LIST - 1
 BRIDGE NO. FRA-MURFD-0223LR
 MUIRFIELD DRIVE OVER NORTH FORK INDIAN RUN
 MUIRFIELD DRIVE
 23 / 24
 44
 45

U:\Accounts\DL\BLN\19002 - Muirfield Drive At North Fork Indian Run\DESIGN\CT\ProjectData\FRA_MURFD_0223\DesignStructures\Sheets\FRA_MURFD_0223_SJL002.dwg 10/20/2020 12:12:08 PM Craig Karagory

REINFORCING STEEL LIST										
MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS					SERIES INC.
	TOTAL				A	B	C	D	E	
NORTHBOUND ABUTMENTS										
A501	40	30'-0"	1252	STR						
	2	20'-0"			14'-5"	5'-2"	2'-3"			
A502	SER OF	TO	906	19	TO	TO	TO			0.5"
	20	23'-5"			15'-3"	7'-5"	3'-7"			
A503	28	35'-9"	1044	STR						
A504	19	13'-1"	259	2	5'-4"	2'-8"	5'-4"			
	1	19'-5"			8'-6"	2'-8"	8'-6"			
A505	SER OF	TO	147	2	TO	TO	TO			1.25"
	7	20'-9"			9'-2"	2'-8"	9'-2"			
A506	3	20'-11"	65	2	9'-3"	2'-8"	9'-3"			
A507	32	10'-8"	356	STR						
A508	2	7'-6"	16	STR						
A509	2	7'-0"	15	STR			'-10"			
A510	1	7'-6"	8	19	5'-9"	1'-9"	0'-3"			
A511	1	7'-0"	7	19	5'-3"	1'-9"	0'-3"			
	1	12'-3"			5'-2"	2'-2"	5'-2"			
A512	SER OF	TO	91	2	TO	TO	TO			0.75"
	7	12'-7"			5'-2"	2'-6"	5'-2"			
	1	19'-5"			8'-9"	2'-2"	8'-9"			
A513	SER OF	TO	83	2	TO	TO	TO			1.75"
	4	20'-5"			9'-2"	2'-4"	9'-2"			
A514	3	20'-9"	65	2	9'-3"	2'-6"	9'-3"			
A515	8	9'-4"	78	19	7'-0"	2'-1"	1'-2"			
A516	8	8'-8"	72	19	6'-3"	2'-2"	1'-1"			
A517	2	6'-6"	14	STR						
A518	2	5'-11"	12	STR						
A519	1	6'-6"	7	19	4'-7"	1'-11"	0'-3"			
A520	1	5'-0"	5	19	3'-11"	1'-1"	0'-3"			
	2	21'-4"			16'-8"	4'-2"	2'-3"			
A521	SER OF	TO	965	19	TO	TO	TO			0.75"
	20	24'-11"			17'-10"	6'-3"	3'-5"			
	1	14'-1"			5'-10"	2'-8"	5'-10"			
A522	SER OF	TO	104	2	TO	TO	TO			6.25"
	6	19'-3"			8'-5"	2'-8"	8'-5"			
A523	3	20'-1"	63	2	8'-10"	2'-8"	8'-10"			
A524	1	4'-7"	5	STR						
A525	1	5'-2"	5	STR						
A526	1	3'-1"	3	STR						
A527	1	3'-8"	4	STR						
A528	1	8'-3"	9	19	6'-5"	1'-8"	0'-11"			
A529	1	8'-8"	9	19	6'-11"	1'-7"	0'-10"			
	1	12'-7"			5'-4"	2'-2"	5'-4"			
A530	SER OF	TO	93	2	TO	TO	TO			0.75"
	7	13'-0"			5'-4"	2'-7"	5'-4"			
	1	18'-11"			8'-6"	2'-2"	8'-6"			
A531	SER OF	TO	101	2	TO	TO	TO			1.25"
	5	20'-0"			8'-11"	2'-5"	8'-11"			
A532	3	20'-4"	64	2	9'-0"	2'-7"	9'-0"			
A533	8	7'-11"	66	19	5'-7"	2'-2"	0'-11"			
A534	8	8'-7"	72	19	6'-2"	2'-2"	1'-2"			
A535	2	5'-3"	11	STR						
A536	2	5'-10"	12	STR						
A537	1	5'-3"	5	19	3'-6"	1'-9"	0'-2"			
A538	1	5'-10"	6	19	4'-0"	1'-10"	0'-3"			

REINFORCING STEEL LIST										
MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS					SERIES INC.
	TOTAL				A	B	C	D	E	
NORTHBOUND ABUTMENTS										
A601	105	10'-0"	1577	17	8'-8"					
A602	111	15'-4"	2556	2	6'-6"	2'-8"	6'-6"			
A603	37	16'-0"	889	2	6'-10"	2'-8"	6'-10"			
A801	138	10'-6"	3869	17	8'-8"					
A802	8	35'-9"	764	STR						
		TOTAL	15754	LBS						

REINFORCING STEEL LIST										
MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS					SERIES INC.
	TOTAL				A	B	C	D	E	
NORTHBOUND SUPERSTRUCTURE										
S601	10	35'-5"	532	STR						
S602	48	3'-2"	228	1	1'-11"	1'-5"				
S603	8	7'-8"	92	3	2'-8"	1'-5"				
S603	8	7'-8"	92	3	2'-8"	1'-5"				
S604	12	4'-9"	86	9	0'-2"	1'-1"	2'-8"			
S801	44	5'-11"	696	16	5'-0"					
		TOTAL	1726	LBS						



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